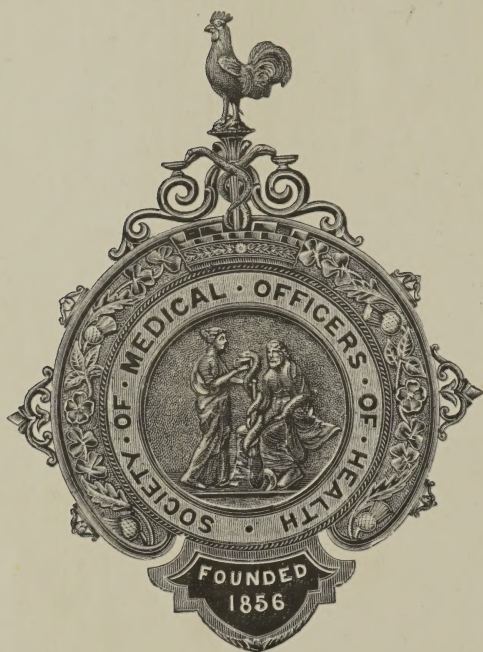


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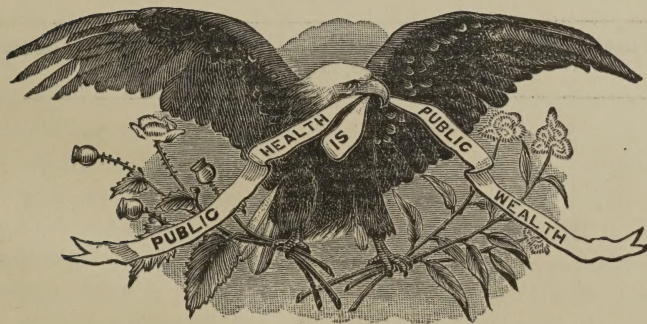
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A MONTHLY MAGAZINE

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PRESERVATION OF HEALTH, MENTAL
AND PHYSICAL CULTURE.



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THE SANITARIAN.

JANUARY, 1893.

NUMBER 278.

INTERNATIONAL SANITATION.

ANNIVERSARY ADDRESS AT THE TWENTIETH ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, AT THE CITY OF MEXICO, MEX., NOVEMBER 29TH, 1892.

By FELIX FORMENTO, A.M., M.D., of New Orleans, La., President.

MR. CHAIRMAN, Fellow-members of the American Public Health Association ; Ladies and Gentlemen :

I feel proud and happy to greet you in this hospitable and beautiful City of Mexico, and to be called upon, as your presiding officer, to address the twentieth meeting of the American Public Health Association, in the presence of such a distinguished audience, composed of the most eminent citizens of our sister republic. What an honor for our Association !

Here we have, on the one hand, men illustrious in science and in art, in peace and in war ; on the other hand, the Chief Magistrate of the Republic, the representatives of the Federal and State governments, the high clergy, with the Most Reverend Archbishop of Mexico at its head ; and as a beam of light and grace, enlivening the graver tone of this assembly, and forming with their Northern sisters a most charming picture, have gathered around us the fairest daughters of this land of dreams ! All have come to express by their presence their sympathy for our great humanitarian work. Is not such a spectacle well calculated to inspire us, to encourage us in the prosecution of the labors we are about to undertake ?

This meeting of the American Public Health Association, in Mexico, is an event of too great importance to be passed

by without special notice. For the first time in its history, it may be said, our Association has met beyond the boundaries of the United States. . . . The meeting held a few years ago in Toronto, just across our borders, in an English-speaking community, having with us such affinities of origin, race, customs and manners, can hardly be considered as held under foreign skies.

This accounts for the unusual interest taken in this reunion by so many savants and sanitarians of both Americas. We are here from every quarter of this great continent, . . . some of us thousands of miles away from our homes, after days and weeks of travel, by land and sea, some in the luxuriant Pullman palace cars, others by the primitive method of mule-back and Indian canoes, over mountains and rivers, across valleys and forests, all undaunted by fear of danger, fatigue, or personal discomfort, by loss of time or money, our hearts beating in unison, our thoughts fixed upon this Mecca, common goal of you devotees to science—soldiers of humanity !

We have come to fraternize with friends, old and new, in this beautiful metropolis, under the united flags of the two great American republics, with the determination that this meeting shall be a grand success in a scientific as well as in a social point of view. This day a new era begins in the political life of our two countries ; this day new and powerful links of mutual affection and esteem are created between two people bound together by common destiny, institutions, and aspirations.

This assembly of men, devoted to the noblest of all sciences—the promotion of public health (I should say international public health)—is an eloquent proof of the solidarity of our profession, which, ignoring all creeds or politics, and not confined within natural or artificial barriers, embraces within its ranks men of all countries and races, in the same brotherhood, under the banner of progress, enlisted in the search of truth, and in the good fight of reason and science against prejudice and ignorance. Our cause is a noble one, gentlemen ; none but the purest motives could inspire the efforts, the workings of an association whose object is to teach the people those laws of hygiene which prolong life, and at the same time secure

health and happiness. It is grand and noble to relieve pain, to cure disease ; it is still grander and nobler to prevent sickness and increase longevity.

Preventive medicine is the legitimate boast and conquest of medical science of the latter part of the nineteenth century. Until comparatively but a few years ago private hygiene was alone taught and practised ; nowadays public hygiene, whose object is the welfare of the masses, is absorbing the attention of governments and individuals. To its development is due the birth of "sanitary science."

This leads me to speak of the origin and foundation of this Association. It was, I think, in the year 1872 that the American Public Health Association was first organized. Its promoters were a few far-sighted and public-spirited citizens, who met, on a September evening, in the parlors of the Ocean House at Long Branch. The names of those noble and philanthropic men should be here gratefully remembered ; to Stephen Smith, Elisha Harris, Rauch, Snow, White and their worthy associates, our people owe a debt of gratitude which they can never well repay. Many of them have been removed from their sphere of usefulness to a better world. . . . A few of the original founders of our Association are still among our ranks, some with us to-night, and their hearts must rejoice when they see the immense progress of this Association, which, already exerting its beneficial influence over millions of people, is now ready to unite in one family the sanitarians of America.

Our Association has just entered its twenty-first year. The young and timid child of a few years ago has now attained the period of manhood. I am happy to congratulate you, gentlemen, upon its reaching its majority under such auspicious circumstances.

The American Public Health Association aims to awake the interest of the public in sanitary matters ; to warn them that the laws of nature cannot be violated without detriment to the community ; that disease and death are, in many cases, the penalty visited upon ignorance, indifference, and neglect of such laws, not the inexorable decree of a "quid divinum."

This Association has been the teacher, the tutor of our people, we may say of our governments. Wherever its great health congresses have been held keen interest has been ex-

cited in public hygiene, extending even to neighboring cities and States ; the people have been led to study their sanitary surroundings and to ameliorate them. Everywhere has local sanitation been improved, causes of disease removed, towns and villages been made clean and healthy ; everywhere have the health and physical conditions of the inhabitants been greatly enhanced. In every city where we have met hundreds of its best citizens have joined the ranks of our Association. As a consequence of this waking-up of our people to the realized necessity of hygienic reforms, numerous auxiliary sanitary associations have been organized throughout the country, and which, acting in accord with the local health authorities, have greatly assisted the latter in the prosecution of their work. Memphis, Nashville, New Orleans, Savannah, Indianapolis—all our cities, I may say, have become enthusiastic on the subject of sanitation, and have accomplished great and permanent sanitary reforms, which, in no other country but ours, could have been obtained without the actual interference and powerful financial assistance of the central government. Suffice it to mention here the admirable system of sewerage of Memphis, the work of one of our fellow-members, which has reduced to a very satisfactory figure the once formidable death-rate of that city, twice decimated, in 1878 and 1879, by dreadful epidemics of yellow-fever.

One of the factors conducive to sanitary progress, in great part due to our Association, is the organization of State and municipal boards of health. It was only twenty-three years ago that the first State Board in the United States was established in Massachusetts. . . . We now have boards of health and health officers in almost every State, city, town, and village in the country. The great majority of them belong to this Association. These organizations have done an immense amount of good ; they have awakened the people from their indifference and neglect ; they have stimulated them to practical results ; they have enlightened rich and poor upon vital questions which were until then entirely unknown. Every citizen to-day fully understands the importance, the necessity of a pure water-supply, pure milk and wholesome food, removal of nuisances, ventilation, drainage, sewerage, paving of streets, etc. Every one appreciates the

benefits of hygiene in all its branches and numerous applications. Our State Boards have done still more for the protection of the public health. Unaided by the National Government, left to their own resources, without the co-operation of fellow-States, many of them have undertaken and carried out to complete success sanitary works of truly national importance. I beg to be excused for mentioning here the remarkable results obtained by the Louisiana State Board of Health, which during the last fourteen years has succeeded in protecting the whole Mississippi Valley from invasion of yellow-fever. Thanks to our incessant vigilance, to our perpetual state of defence, thanks to our efficient system of quarantine, yellow-fever has been excluded from our shores, while at the same time our commercial relations with Central and South America have been greatly extended, and we hope will take greater development in the future.

But a local system of maritime sanitation, however perfect it may be, will not suffice by itself to bring about these much-desired commercial facilities. It will be our duty to study, to suggest such sanitary measures and quarantine reforms as are required in those ports of the Gulf and of the Antilles where yellow-fever is endemic, and which have most direct commercial relations with our American ports ; to study the proper construction of steamers plying between these ports, their equipment, furniture, crew, etc., the proper methods of disinfecting them at the point of departure, during the voyage, and on their arrival.

It is our paramount duty as sanitarians to indicate and cause to be enforced such measures as will secure the public health. Subsidiarily, as citizens we should foster the development of commerce and business relations between our respective countries, as the main source of wealth and prosperity of a people.

The American Public Health Association has the support, the backing of the whole medical profession of the United States. It will soon likewise secure the endorsement of the distinguished and enlightened profession of the country. Thanks to its influence on public opinion and on the press, it has been able to obtain the passage of many excellent laws in favor of public hygiene and sanitation.

Every one of our meetings, held annually in a different city,

has served not only to establish more intimate relations between our fellow-members, but also between the people of different sections of the country. Everywhere we have found something of interest. Here, particularly, many new and instructive object lessons will be imparted to us. We will be able to compare the old and new civilization of an extraordinary country ; . . . the remnants of the mysterious civilization of the Aztecs, and the wonderful achievements of progressive modern Mexico.

In matters which concern us more directly we will find ample opportunities for study and investigation. We will visit with surprise and admiration your great engineering works for the drainage of this remarkable valley—these works first undertaken three centuries ago, and which under the present energetic government will soon be brought to a successful termination. We will find in your admirable code of sanitary laws many excellent provisions to adopt.

Nothing, gentlemen, is more apt to bring men together than mutual interest. A common cause unites us ; our object is the same. We are working, not for one particular section or State, but for the amelioration, the welfare of the whole country. This desire, this ambition has extended beyond our political frontiers. We recognize that in science, in public hygiene, the different nations of a whole continent are as much our fellow-citizens as those living under our flag and institutions.

In this age of rapid railway communications we are all equally interested in preventing the introduction of foreign pestilence, in removing permanent, endemic causes of disease, whether they exist within our own borders or across the frontier. We are engaged in the same fight. We can only win by concert of action, by a well-elaborated plan of battle. To that end we have come to you, and we hope with your assistance to see the influence of this, our common Association, extend to the farthest limits of the American Continent.

The United States, Canada, and Mexico are already working in harmony toward securing this great object of a mutual protection by improved sanitation and a progressive system of quarantine, which will *protect* without unnecessary restrictions upon commerce and the hardships of the past. We want

Cuba and the Central and South American States to join our Sanitary Protective Union. We will then soon be able to formulate some systematic, practical plan by which all unnecessary restrictions will be removed, and to adopt a system of international notification and report of all contagious and infectious diseases—a system which now exists among the different States of the American Union. By this means confidence will be established, sensational rumors prevented, panics avoided, and the barbarous shot-gun quarantine abolished. By concert of action and co-operation our Boards of Health will be enabled to stamp out contagion without creating a disturbance in the whole country.

This meeting, I predict, will establish perfect confidence and harmony between the sanitary authorities here represented. There is no telling, gentlemen, to what results may lead this active co-operation, this better knowledge of men and things, this common understanding, this moral obligation freely and unreservedly subscribed to, by men of honor, to help and protect each other, to discard all measures not sanctioned by science. Statesmen and diplomats have invented as bonds of union between nations, Dreibunds and Zolvereins, reciprocity and the like. What are those measures in comparison to the sanitary union we propose? They disappear in their insignificance. The former, based upon political or economical considerations alone, are ephemeral; the latter, born of a great humanitarian thought, should be immortal.

This is the age of sanitary engineering. Thanks to it, whole sections of country, formerly uninhabitable on account of malaria, have been redeemed to habitation and agriculture; cities once foci of disease have been remodelled and made clean and healthy; trades and industries, once considered as fatal to man, have become innocuous.

The sanitary engineer goes hand-in-hand with the modern sanitarian. Their united efforts have accomplished wonders; by their joint action thousands of lives have been saved and millions of dollars added to the public wealth. See what has been done in the case of London, where, with its four millions of inhabitants and the unfavorable conditions arising from such an agglomeration of people, the death-rate has been gradually reduced, in a comparatively short time, from 40 per

1000 per annum to 16 per 1000 ! Consider the changes in the sanitary conditions of Marseilles, Toulon, Rome, Naples, and other cities, once hotbeds of disease. Since the last cholera epidemic which decimated Naples, in 1883, the Italian Government, in spite of its financial troubles, voted sixty millions of francs for the sanitary improvement of that city ! Numerous examples of the kind are to be found both in Europe and in America. It is sufficient to recall to mind the gigantic sanitary work of New York, Chicago, and this very City of Mexico, whether it be to obtain an abundant supply of pure water or to secure a proper system of drainage and sewerage.

Never was there a more propitious time to agitate this great question of public sanitation. Governments and individuals begin to fully realize that sanitary improvement is a good investment ; that hundreds or thousands spent in that direction will bring back millions and millions, to say nothing of the added value of increased population and diminished death-rate. . . . It pays to enforce sanitation.

Will it be said that the united efforts of our people will fail to accomplish that which single-handed cities and communities, far less wealthy and prosperous than ours, have accomplished ? What Italy has done in Naples and Rome, are our governments unable to do ?

The great vital problem for us, gentlemen, is yellow-fever. Are we not justified in hoping that our combined efforts will find out its true endemic causes and the proper means to wipe it out ? The Mexican Gulf ports, the Antilles, the Atlantic Coast of South America, all reputed habitats of yellow-fever, call to-day for energetic action. We must smother the scourge in its very cradle !

We are in an era of progress. A near future will realize our hopes. The stamping out of yellow-fever will be the triumph of modern sanitary engineering !

To attain such a goal, which would create a new epoch for our respective countries, what are the proper measures and means ? Without discounting the future, I would respectfully suggest, as a preliminary step, the appointment by the Association of a permanent committee " On the Origin, Causes, and Development of Yellow-Fever, and the Proper Means to Wipe it Out at its Birth." This committee to be composed

of sanitarians and engineers from the different countries represented in this Association, invoking, if necessary, the assistance of our governments.

Let such a committee set to work deliberately, make an annual report of its labors, and, in a few years, I am confident, we will have accomplished great results.

Let us now review the principal events and improvements that have taken place in public hygiene since our last meeting. The facts and figures here given are mainly taken from the remarkable article on "Hygiene and Epidemiology," in the Annual of the Universal Medical Sciences, issue of 1892, by our worthy Vice-President, Walter Wyman, A.M., M.D., Surgeon-General United States Marine Hospital Service.

The most notable sanitary event of the year 1891 was the Seventh International Congress of Hygiene and Demography, held in London, August 10th-17th, 1891, two months before our last reunion. Sir Joseph Fayrer, President of the Section on Preventive Medicine, referred in his address to the wonderful improvements in the public health of England due to sanitary work, showing that in two hundred years the death-rate had diminished from 80 per 1000 to 17.85 per 1000 per annum. In some parts of England, he says, where the main object is the recovery or the maintenance of health, the death-rate is down to 9 per 1000, while in others, where the main object is manufacture and money-making, it is as high as 30 per 1000.

The decline in the general death-rate has been from 22 per 1000 in 1866-70 to 17 per 1000 in 1890. This is no doubt due to the enforcement of sanitary measures prescribed by the "Public Health" and other sanitary acts. A still further decrease will follow a more general and energetic enforcement of these acts, with a corresponding improvement in the material and social welfare of the masses.

To show the relation of filth upon the public health, Luigi Hanfredi has made elaborate investigations on the composition of the dust of the streets of Naples, giving the number of microbes of all kinds per one gram of dust. Remarkable differences in the proportion of micro-organisms exist in the dust from the different quarters of the city. In the cleanest streets the number of microbes was ten millions (10,000,000) per gram, while in some of the dirtiest streets that number

was raised to five billions per gram. In every case the unhealthiness of the street or quarter was in direct proportion to the number of microbes in the dust.

The question of water-supply for towns and cities continues to be the absorbing topic among sanitarians and engineers. Every one recognizes the relation existing between the water-supply of a city and the prevalence or absence of typhoid-fever, dysentery, and cholera. Water is the habitual vehiculum of the pathogenic germs producing those diseases; these will disappear wherever and whenever a supply of pure and untainted water is obtained. Filtration for water-works is now recognized as the best method of purification of water from rivers and streams.

A proper system of drainage and sewerage is not less desirable than a pure water-supply. Everywhere a greatly reduced death-rate has followed the introduction of such a system. We expect great results in my native city from the plan lately adopted.

On the subject of alimentation we will say that the necessity of meat inspection, as well as that of a fixed standard to determine the quality of milk, the prohibition from the market of tuberculous milk and meat are now recognized by all sanitarians, and sanitary laws to the effect are being gradually adopted and enforced in every country.

The question as to whether the addition to food of antiseptics as preservative agents constitutes an adulteration has been repeatedly discussed among sanitarians and manufacturers. Salicylic acid was first used as a preservative, especially in beer. In a lawsuit by some French brewers against German beer introduced in France, and which almost invariably contained salicylic acid, the Paris Court of Appeals decided that that acid was to be regarded as an adulterant and to the prejudice of the purchaser. A commission of the Académie de Médecine, appointed to inquire into the action of salicylic acid in food, reported that in many instances it had produced serious effects, and that small but continued doses were likely to result in grave gastric and hepatic disturbances. All addition of salicylic acid was prohibited by the French, Italian, Austrian, Spanish, and Dutch governments. Since the general prohibition of the use of salicylic acid other

substances have been used in its place, such as bisulphites, benzoic and boracic acids, benzoates and borates. The boracic acid and borates are generally considered to be the mildest and most harmless of antiseptics. We are of opinion, however, that the use of all antiseptics, whether as preservative agents or for the purpose of "regreening" of vegetables, such as is practised so extensively in France with sulphate of copper, should be strictly prohibited by law.

VACCINATION.

It seems strange, after all that has been said and written in favor of vaccination, and the overwhelming proofs of its efficacy everywhere, that we should be obliged to notice at the end of this nineteenth century that this practice still finds some opposition in certain classes of the people, and even among physicians. We are greatly surprised to see Dr. Le Fort, in a recent discussion at the Académie de Médecine, on the results of obligatory vaccination in England and Prussia, endeavoring to prove that the decrease of the mortality by small-pox in these countries is due more to isolation and the erection of special hospitals than to obligatory vaccination, which, he adds, would never have been voted for in a French Chamber. In refutation of such dangerous doctrines, we will simply call your attention to a comparative tableau to be found in Wyman's article on Hygiene, Annual of 1892, showing the annual death-rate from small-pox per one hundred thousand inhabitants in Prussia and Holland *before* and *after* the enactment of the obligatory vaccination laws; and, on the other hand, the results noticed in Austria, where no compulsory vaccination exists. The frequent local epidemics of small-pox in this country offer a striking contrast between the immunity of those who have been vaccinated and the excessive mortality in the non-vaccinated population.

QUARANTINE.

The subject of quarantine was extensively discussed at the Seventh International Congress of Hygiene and Demography. Sir Joseph Fayrer expressed the English opinion in regard to it when he said: "That we can exterminate zymotic disease altogether is not to be expected, but there cannot be a doubt

that we may diminish its incidence ; and though we may never be able to reach the ' fons et origo mali,' yet we can make the soil upon which its seed is sown so inhospitable as to render it sterile."

Surgeon-General J. M. Cunningham said that sea-quarantine had done no good ; that quarantine was a tyranny, obstructing commerce and interfering with personal liberty, etc.

While we admire the remarkable progress made in England in local sanitation, and are among the first to recognize the extraordinary results achieved by it, some of which have been mentioned in this paper, we cannot help considering such doctrines as fraught with danger and entirely at variance with the results obtained in other countries. The resistance of England to quarantine can only be ascribed to its insular position, its great distance from the source of yellow-fever and cholera, and its favorable climatic conditions. In fact, outside of England the English people make no objection to quarantine. We notice that the countries in the Mediterranean basin, which are the most severe in the matter of quarantine, are the English possessions of Gibraltar, Malta, and Cyprus. We know that in Canada strict quarantine restrictions are enforced under the superintendence of my distinguished predecessor, Dr. Montizambert. In the United States the general process of disinfection, besides thorough cleansing, discharging of ballast, pumping out of bilge-water, scrubbing of woodwork, etc., consists of fumigation with sulphur dioxide, the use of bichloride of mercury and steam heat, with a reasonable period of observation.

Disinfecting apparatus by means of steam under pressure should be of more general use in local sanitation. Every hospital should be supplied with one, and in all large towns there should exist, as in many cities of Europe, some establishments where infected bedding and clothing could be properly disinfected. That the general laundry has been the means of spreading infection in many cases there can be no doubt.

INFLUENZA.

At the close of the year 1891 influenza was raging violently in most countries of Europe. It prevailed in epidemic form in Russia, Austria, England, France, and Germany. In Ber-

lin alone not less than forty thousand cases of influenza were reported during a period of four weeks. About the same time it was quite prevalent in almost every country of the world. In Japan it prevailed extensively, fifty thousand cases being reported among the Japanese in Yokohama alone. Since epidemic influenza first appeared in the United States, in March, 1891, it gradually spread until every city and town in the whole country became affected with the disease. It generally prevailed for a period of about six weeks, indirectly causing everywhere a very high death-rate, interfering in many cases with the municipal public service. In some cities it seemed to assume new forms and to constitute, so to speak, a new disease, or rather to give rise to special pathological lesions. Those of the so-called grip-lung were the most striking. In this form rapid infiltration or solidification of a whole lung sometimes took place in the space of twenty-four hours, not from hepatization or pleuretic effusion, but from what seemed to be solidification of effused liquid matter in the substance of the lung. This condition, often noticed in my own practice, when not rapidly fatal lasted months and months, no remedy proving of any avail apparently, the patient owing his recovery to "*vis medicatrix naturæ*." As far as I know, the causal micro-organism has not yet been discovered. The disease has once more disappeared as mysteriously as it first appeared.

CHOLERA.

This dreadful scourge, which only a few weeks ago threatened the continent of Europe, has now ceased to occupy the public mind, although still smouldering in different parts of the country. America has once more been spared the horrors of a cholera epidemic. You will remember that in 1884, when it reigned epidemically in Spain, Italy, and France, we escaped it on this side of the ocean. Studying the course of the disease, we find it followed the same route as it did in 1831 and 1847. Brought from Persia to Bakhum, the eastern terminus of the Trans-Caucasian Railroad, it soon spread in every direction on the western shore of the Caspian Sea, reaching Petrovsk, Astrakhan, and advancing into the interior to Tiflis, Samora, *en route* toward the Black Sea and

Central Russia. From Russia it was carried to Hamburg, Antwerp, and Havre by Jewish emigrants booked for the United States. In Hamburg, where all the conditions favorable to its propagation existed, the epidemic soon assumed immense proportions, causing several hundred deaths per day; while in other cities in better sanitary condition, notably Berlin and Paris, where it appeared, it did not spread and did but little harm.

The facts relating to the recent importation of cholera in New York City by infected Hamburg vessels, through a defective system of quarantine, and the stamping-out by isolation and other strict sanitary measures of the few cases which had there developed, are too fresh in our mind to require much dwelling upon. New York had been found shamefully unprepared. At one time the danger was threatening indeed; . . . there was a momentary panic all over the country; but soon recovering, the people awoke to energetic action; measures were at once taken to place cities and towns in proper sanitary condition, and to prevent by sea and land quarantines the introduction of the pestilential disease. So far we have escaped the danger. Our future safety is at the price of our continual vigilance.

Let us here remark that the cholera inoculation of Pasteur and Haffkine has proved quite successful in the case of guinea-pigs, which have been rendered cholera-proof by it. If the heroic experiment recently accomplished by the New York *Herald* correspondent can prove anything (it being an only case), such method promises equal results with human beings.

IMMUNITY.

We cannot close this review without mentioning a few of the latest and most curious investigations on the subject of immunity.

Recent researches of bacteriologists have demonstrated that immunity against certain communicable diseases can be acquired by inoculation of the blood-serum of an animal naturally immune to that disease; for instance, the blood-serum of a goat, which is said to possess a natural immunity against anthrax, if injected into a susceptible animal will protect the latter against that disease; in this case the most virulent

injections will give no results. In like manner the blood-serum of an animal rendered artificially immune will, when injected into another animal, act as a protective vaccine.

The pathogenic action of all infectious bacteria seems to be due to toxic products or toxines secreted, elaborated during the active development of the bacteria cells. Bacteriologists are now everywhere absorbed in researches and studies destined to find out the proper method of isolating these toxic products. Extraordinary results have lately been obtained.

Professor Tizzoni and Dr. Cattani, of the University of Bologna, discovered some time ago a protective vaccine against tetanus. After many experiments they succeeded in finding in the blood of an animal refractory to tetanus a particular substance, the "tetanus antitoxine," which they isolated and cultivated. This substance injected into animals invariably protected them against the most virulent inoculations of tetanus.

But still more extraordinary are the results achieved. Further experiments proved that this antitoxine is not only a preventive, but a curative agent of tetanus not only in animals, but in man. Cases of actual recoveries by antitoxine injections in advanced stages of the disease have been observed by Tizzoni, Cattani, and Schwartz, of Padua, and other successful results under the same treatment have been since reported.

This success with tetanus suggested the idea of generalizing the method and applying it to rabies. Previous experiments made by Tizzoni and Schwartz had shown that the blood-serum of an animal rendered immune by Pasteur's vaccination neutralized the virus of rabies to the point of rendering its inoculation perfectly inert. New experiments were made on animals actually affected with rabies, and it was demonstrated that injections of the blood-serum of an animal so rendered immune not only prevented the development of rabies, but cured the disease already in existence. Some cases of recovery are reported in which the injections were practised as late as forty-eight hours after the disease had developed. Drs. Tizzoni and Cattani have very recently communicated to the Regia Accademia dei Lincei the result of their latest experiments. They have succeeded, after

numerous complicated researches, in extracting from the medulla of a rabid animal a substance, antitoxine, apparently free of all virulence, and which, injected into animals affected with rabies, is reported to have actually cured the disease. We already possessed Pasteur's preventive inoculation; if time and experience should confirm the Italian physicians' observations, Tizzoni's method will become the curative treatment of a disease which up to the present time had baffled all the resources of science.

So far the Bologna savants have operated on animals only. Let us hope their method of treatment will prove equally successful with man, giving as good results as the analogous treatment of tetanus by antitoxine injections.

While on the subject of preventive inoculations, we deem it but just to recall to mind Foran's cholera protective inoculations, and more particularly the experiments of Freire, Carmona, and others on the prevention of yellow-fever by inoculation of attenuated virus. Their methods have not received the unqualified sanction of science; the existence of the *micrococcus xanthogenicus* has been denied by many. Still, we must admit that their researches are in line with the principles laid down by the immortal Pasteur, and in consonance with the latest discoveries of bacteriologists. By analogy, we should not belittle the results they may lead to. At any rate, it is proper and just to recognize their scientific efforts and encourage them. Failure itself is honorable, when engaged in such a cause.

Thorough investigations of this important subject should be entrusted to unprejudiced and disinterested persons versed in bacteriological methods, and experienced in the diagnosis and treatment of yellow-fever. These duties might well be confided to the Yellow-Fever Commission proposed by us. It would investigate the subject of yellow-fever inoculation as well as all points relative to the origin, causes, development, and prophylaxis of the disease.

Up to this time the researches of bacteriology have been of more benefit to preventive medicine than to therapeutics. Only in a very limited measure has the knowledge of a specific cause of disease been conducive to a specific treatment. The latest discoveries of bacteriologists, among whom our

distinguished fellow-member, Colonel George M. Sternberg, Surgeon United States Army, seem to indicate a new departure in the treatment of infectious diseases. Although as sanitarians we are more directly interested in preventive than in curative medicine, yet the subjects are so closely allied that progress in one is a step forward in the other. In this connection we deem it appropriate to reproduce the following extract from the masterly address "On General Medicine," read at the Detroit meeting of the American Medical Association by our esteemed friend, Dr. A. L. Gihon, Medical Director United States Navy: "Erhlich's experiments with pathogenic toxalbumins, Sewall's showing that immunity from poisoning by rattlesnake venom may be produced by small doses of its toxic agent, and other facts give strong support to the view that all infectious diseases are due to the action of substances resembling the toxalbumins already discovered, and that acquired immunity from any of them is due to the formation of antitoxines in the blood of the immuned animal. Sternberg suggests the possibility that in these diseases the toxalbumin, which gives them their specific character, is a product of the living cells of the body of the infected individual, and says the inference is justifiable that the blood and tissue-juices of any individual who has recently suffered an attack of small-pox or scarlet-fever contains an antitoxine which would neutralize the active poison in the circulation of another person immediately after infection. Dr. Sternberg holds the experiment warrantable to ascertain whether a small quantity of blood drawn from the veins of the protected person would suffice to arrest or modify the course of these diseases. The transfusion of a moderate amount of such blood might be curative or confer immunity in advance of infection, and possibly an antitoxine may be obtained from the blood of vaccinated calves which would have a curative action on small-pox. Dr. Sternberg has himself demonstrated, by recent experiments with the blood of vaccinated calves, that there is something in this blood which does neutralize the specific virulence of vaccine virus, both bovine and humanized."

These experiments are still in their infancy; it is impossible to foresee the results they may lead to. . . . A new light

seems to be dawning on the horizon of preventive medicine as well as that of general therapeutics. Has science reached the point of coercing nature to yield its secret? Will the medicine of the future consist in opposing curative antitoxines to toxic microbes?

But, without dwelling much further on this subject, it suffices to indicate that since the remarkable discoveries of Pasteur and his followers new horizons have been opened to science, justifying the hope that, in the course of time, wonderful practical results will be attained in all branches of medicine.

In my opening remarks were mentioned the causes which created particular interest in the present reunion; a spirit of justice induces me to recall here the two factors which have mostly contributed to its success.

Shortly after our last meeting in Kansas City, our worthy Secretary undertook, in the interest of our Association, a long and fatiguing journey to the remotest regions of this immense country, to Cuba, and Central America. Its principal object was to excite the interest of the people and of the different governments in sanitary matters, and to obtain their participation in this meeting. To that effect Dr. Irving A. Watson was commissioned "Health Ambassador" to Mexico, Cuba, and Central America. For the first time, perhaps, was such a mission confided to any one. No ambassador of kings or monarchs ever received a more flattering and hearty welcome—an honor rendered to the personal merit of the man as well as to the representative of this great international organization. His mission was a complete success.

The Chairman of the Local Committee of Arrangements plays a no less important part in the happy results of our meetings. No better selection could have been made than that of our eminent and distinguished Chairman, Dr. Eduardo Liceaga. To the high official position he occupies, to the legitimate influence he commands, to his scientific attainments and social standing in this community the success of the Congress is mainly due.

This double debt to our Secretary and to our Chairman of the Local Committee of Arrangements is cordially acknowledged, and I take pleasure in tendering them the thanks of the assembly and the assurance of my personal gratitude.

Let us congratulate ourselves, gentlemen, upon our acceptance of the pressing invitation of the Mexican Government to hold our meeting in this city. The intelligent transfer of the scene of our debates far beyond our boundaries to the capital of our friends and neighbors is the first step to the scientific unification of the whole American Continent. This is the first real International Health Congress held on this side of the Atlantic. As such, its duty is to unravel the problem of yellow-fever, which is the only obstacle to the much-desired commercial, social, and intellectual intercourse between our respective countries and nations. Yellow-fever is the curse and drawback of America's southern climes. If this meeting could successfully devise the means of stamping it out forever from all parts of the Continent, it would richly deserve the blessings of future generations.

In another point of view this meeting deserves our reciprocal congratulations. We only needed to meet in conference, and immediately a bond of friendship was sealed not merely between scientists, but between the two nations.

In addition, what an opportunity, never to be forgotten, of seeing, of admiring Mexico in all her glory ! Of being able to witness the grandeur, the prosperity of this land of the Montezumas, under its progressive republican form of government, its modern resources ; to contemplate its bold railways and viaducts, suspended in mid-air, in their vertiginous ascent and descent of gigantic mountains, its beautiful valleys, torrents and streams, its majestic scenery, its thriving towns and cities, rendered rich by local industries, its mines and its forests, its palaces, cathedrals, schools, and museums, . . . the whole brought out in relief by the vestiges of its immortal past, a double civilization in striking contrast !

Should we leave unmentioned its delightful climate, its blue sky, its wonderful fruits and beautiful flowers !

But above all stand the noted courtesy, the exquisite refinement of its inhabitants, who have made us at home and filled our hearts with everlasting gratitude !

This day will be inscribed in gold letters in the annals of the Association, and I here express the sentiment of the whole assemblage when I exclaim from the bottom of my heart, Viva México !!!

POWERS AND DUTIES OF BOARDS OF HEALTH.

THE SANITARIAN is under obligations to Dr. Horatio R. Storer, of Newport, R. I., for the following exhaustive statement of the law, in its various bearings, enunciated by Judge Darius Baker of that city, at the request of the Newport Business Men's Association.

The protection of the public health belongs to what is known as the police power. All property is held subject to this power, which regulates its private use and enjoyment by the owner. If he suffer injury from its exercise, it is either *damnum absque injuriâ*, injury without wrong, or he is compensated for it by sharing in the general benefits which the regulations are intended to secure. This power, which is of wide scope and includes many other things for the preservation of the public health, for convenience of exercise and administration is usually delegated to municipal corporations. For present purposes we shall refer only to that branch of it which pertains to health. This has been expressly conferred upon our city by that portion of the charter which provides that "the City Council shall have power to make ordinances and regulations for the government of said city relative to the public health."

The Public Statutes also provide that "town councils and boards of aldermen shall be *ex-officio* boards of health in their respective towns and may make such rules and regulations, not repugnant to the law, as they shall judge proper for the preservation of the health of the inhabitants thereof, the prevention and abatement of nuisances, the promotion of cleanliness, the removal of the causes and the prevention of the introduction and spread of any contagious or infectious diseases therein," with authority to affix penalties for the breach of such rules and regulations not exceeding three hundred dollars fine or six months' imprisonment for any one offence, and with the proviso that the City Council may appoint a Board of Health, which shall have all or any part of the

powers and duties of the Board of Aldermen as a Board of Health, as the City Council may determine.

In addition to this, extensive powers as to the abatement or removal of certain nuisances are conferred upon town councils (which may be construed to mean boards of aldermen)—such as slaughter-houses, bone-boiling establishments, and fish-oil works—as to the regulation or control of the “construction and location of all places for keeping swine, privy vaults, sinks, sink drains, sink spouts, cesspools, and the outlets thereof;” “the summary removal or reconstruction of all such as shall be by them deemed prejudicial to the public health, the location of stables and the time or manner of removing filth from them and from the vaults or slaughter-houses”—also as to making suitable regulations and arrangements for the prevention of infectious and contagious diseases, and for the quarantine of vessels and persons on them, and for the burial of the dead. By public law, passed in 1885, a “town council may order the owner or occupant of any premises” in the town “to remove at his own expense any nuisance, source of filth, filth or cause of sickness found thereon within twenty-four hours’ after notice, under penalty of not exceeding twenty dollars a day for a non-compliance with such order. It may also “when satisfied upon due examination that any cellar, room, tenement or building in its town occupied as a dwelling-place has become, by means of the number of occupants or want of cleanliness or other causes, unfit for occupation as a dwelling-place and a cause of nuisance to the occupants or the public,” require the premises in question to be suitably cleansed and, if the order is not complied with, may cause them to be cleansed at the occupants’ expense, or may forcibly remove the occupants and close the building against future occupancy.

The health officer required to be appointed in towns under this act is the agent of the town council for “making all sanitary inspections,” may “make complaints for the violation of any law, ordinance, rule or regulation relating to the public health of his town, without giving surety for costs or, in cases of emergency, when the council cannot be conveniently convened, shall have all the authority conferred by this act upon town councils.” The city of Newport is exempted

from appointing such health officer ; but the power and duties of its Board of Health are commensurate with the powers and duties of the health officer as set forth in the act.

We have by no means stated all of the powers specifically conferred in relation to the public health and its preservation, but enough has been said to show the scope or extent of the authority delegated to the city in this matter. It is undoubtedly adequate to the exigencies of the case. The next inquiry naturally is as to how far these powers have been exercised by the city. Under them the City Council has from time to time passed various ordinances relating to most, and perhaps all, the subjects above referred to, including quarantine, the burial of the dead, and the regulation of a great many matters properly grouped under the head of nuisances, for example, as to the use of fish manure in this city, the localities of hog pens, the removal of offal, and other filth from private premises, when calculated to injure health, and other kindred matters. It does not seem necessary, as it is not my present purpose, to show how fully these powers have been used as to matters of detail.

These ordinances were most of them passed years ago, and while, perhaps, they may not be entirely adequate to the requirements of the modern view as to sanitary regulations, yet it is probable that whatever deficiency there may be in them as a system lies largely in the failure to provide the proper means for the efficient enforcement of existing laws and regulations. In the present generally accepted views as to the origin, spread and danger of filth diseases and the means to "be employed for their suppression, the old arrangement, under which the inspector of nuisances was the chief and perhaps only executive health officer of the city, is confessedly entirely insufficient. It furnished a way in which a nuisance could be abated, but it is not in harmony with the spirit pervading more recent health legislation, which provides for thorough sanitary supervision and intelligently attempts to prevent as well as to remove the causes of disease.

The requisites of such sanitary supervision are the gathering of complete health statistics, the right of local inspection, the compelling of a general observance of uniform and wholesome regulations and the power of quarantine and of summarily re-

moving the cause of disease in cases of emergency. I will not attempt to elaborate either of these points. It is difficult to conceive of any one's objecting to such a system if intelligently and wisely administered. It was a step toward the more efficient administration of health regulations when the City Council passed an ordinance creating a board of health, and giving to it practically all of the administrative and executive powers of the board of aldermen as a board of health. The powers of the board under this ordinance are to "make all proper inquiries into all things in said city which may in any way affect the health;" to "prepare and compile all such statistics relating to the health of said city as it may deem proper;" to "see to the enforcement of all laws pertaining to the health of said city, as well as the regulations originating with said board and those of the board of aldermen acting as a board of health." It has an executive officer, and the inspector of nuisances is also subject to its directions. From this it is apparent that the board is clothed with large executive powers, which in emergencies are very reaching, when we take into account the provisions of the act above referred to, passed in 1885.

I assume that legislative power is not conferred upon the board under the ordinance, notwithstanding the reference to "the regulation originating with said board," as that is obviously an allusion to a provision in the ordinance as originally passed in 1885 (since stricken out), that the board might prepare regulations and submit them to the board of aldermen for their approval.

Without here discussing the question as to whether events have shown that the power of the board of health might well be enlarged (as to which I simply say that I am inclined to the opinion that for the present the existing division of authority is unobjectionable), I think that it has been generally recognized that its existence has demonstrated its usefulness and necessity. And if its efficiency is to be greatly increased, that can be best accomplished by bringing within its control all matters pertaining to the administration of that branch of government relating to the public health.

The board itself is apparently open to criticism in not using all of its authority in this direction. It is understood that it

has no direct knowledge or supervision of the regulations as to the proper disposal and removal of swill and garbage. Yet the complaints in relation thereto are made to the inspector of nuisances, who under the ordinance is expressly made subject to its order. In my judgment what is now most needed, is in this same line of improving the administration of the Health Department—namely, some provision for the better enforcement of some of the existing regulations and ordinances.

For instance, a regulation requires a householder to get permission before connecting a private drain with a public sewer, and also that a trap shall be placed between the sewer connection and the house. These requirements are eminently proper ones. But the permit being obtained, there is no arrangement for public supervision to see that the work is properly done or that the trap is suitably placed. I am informed that there is at the present time in this city a case of diphtheria, in a house where drain-pipe connects directly with the public sewer without any intervening trap. There should be some regulation requiring public supervision of such an important matter as this.

I repeat, therefore, that what now appears to be most requisite in this connection, is the taking of those steps which tend to the more efficient enforcement of existing laws, ordinances, and regulations.

Although most of our ordinances as to the preservation of health, as has already been indicated, have the sanction of years, it is not improbable that many of them may be susceptible of improvement in some respects. The suggestion of such changes, if they are really needed, would naturally first come from those who are to discuss this question of public health as to its practical aspects. I only call attention to two or three things, which are important to be considered in the making of ordinances and regulations like these which have been referred to. These regulations are all infringements upon the rights of owners to use or enjoy their own property, and in consequence they should be no more burdensome than is necessary. Therefore, when a question arises as to the validity of an ordinance, some of the principal tests are: Is it in conformity with existing laws? Is it impartial,

fair, and general? Is it oppressive? Is it reasonable? At first thought it might seem that, when the power to make ordinances in relation to a certain subject is conferred by some general law upon different municipalities, they might all exercise it in the same way and to the same extent. But it requires no demonstration to show that the provisions of an ordinance might be reasonable, as applied to the city of Providence, and quite the reverse in reference to the town of Jamestown.

An ordinance prohibiting the burial of the dead in the lower part of New York City was held to be reasonable and valid. A similar ordinance, practically prohibitive, in a suburban town, was held to be unreasonable and invalid.

“The law will not allow the rights of property to be invalid under the guise of police regulation for the preservation of health,” when such regulation is not for public good. And the question of reasonableness is determined by the courts, and not by juries.

DETECTION OF FROZEN MEAT.—The process adopted by the author for distinguishing between fresh meat and that which has been preserved in the frozen state consists in expressing a little blood or meat juice from the sample, and examining it under the microscope. The whole operation must be performed quickly, in order to prevent any drying up of the liquid under examination. When the juice of fresh flesh is thus examined, it is seen to contain numerous red corpuscles, which are normal in color, and float in a clear serum. In the case of blood from frozen flesh, the corpuscles have dissolved in the serum under the influence of the low temperature, and not a single normal red corpuscle can be seen. The hæmoglobin escapes into the serum, and appears as irregular yellow-brown crystals. These may be frequently seen by the naked eye, but, in every case, can be readily detected under the microscope.—*Maljean, in J. Pharm. Chim., Chim. Zeit.*

EYESIGHT, IN MIDDLE LIFE AND OLD AGE, WITH A FEW HINTS FOR ITS CARE AND PRES- ERVATION.

By L. WEBSTER FOX, M.D.

LITTLE more than a year ago I had the honor of appearing before the members of the Franklin Institute and their friends, to lecture on a subject of great importance to the growing child and youth.*

The widespread interest which that lecture created not only in this country but abroad, its republication in scientific and abstracts from it by medical journals, has led me to think that that lecture has not been without its good results. In it I dealt with the care of vision during infancy and led up to adult life. Having considered these two periods and called attention to whatever may prove either injurious or beneficial to the eye, I now take up the thread of my discourse, and continue it up to old age.

If the eye of man has escaped the vicissitudes of youth, we find it at its best at about twenty years of age. Let the boy be brought up strong in mind and with a clear intellect, so that when he enters his twenty-first year he will have the physique to carry him through the life work which lies before him.

In this day of telegraphy, shorthand and specialism, man has much labor both mentally and physically to perform, and we must always remember that 'tis through the eye that the greater part of this labor is accomplished.

It is bound to excite astonishment at the wonderful labor-performing functions of an eye when we think of what can be done. The expenditure of eyesight means also the necessity of recuperation of the functions of the eye. If these functions are blunted by some toxic drug, the vision must necessarily become weakened and in some instances destroyed.

"Habit," says Schiller, "is the nurse of man." If boys bring with them up to the entrance of manhood habits which

* THE SANITARIAN, Vol. XXIX., p. 492.

are pernicious, what a serious outlook for the lasting qualities of that individual who requires immense expenditure of nervous energy and eyesight between manhood and old age, or between twenty and sixty !

Some of you may remember that I closed my last lecture by suggesting some hints on the care of vision, and called attention to the habit of smoking, particularly. Tobacco and alcohol are the two most prominent agents which not only pervert, but also destroy special senses, and of which men of this age too freely indulge, especially in social life. How guarded should the young man be that he does not fall into habits which cling to him through life like a leech !

It is a well-authenticated fact that boys who have indulged in the use of tobacco are not mentally and physically as strong as those who abstain ; not only have medical men recognized the tendency to a depression of the vital force in boys and young men who are constant users of tobacco, but athletic trainers will never select their boats' crew from such ranks.

These men know that tobacco weakens the heart. It is the same with foot-ball teams or tug-of-war men ; they may be giants of strength, but when the final test comes, that subtle fluid flying through their nerves with lightning-like rapidity is suddenly snapped ; collapse and defeat follow.

When such facts are known to non-medical men, no wonder that twenty-nine States have passed laws forbidding the sale of tobacco to boys !

I do not wish in a public lecture of this kind to speak of a great benefactor, but I must say that if any one man deserves the thanks of a generation, it is John H. Fow, of this city, for bringing about the law prohibiting the sale of cigarettes to boys.

The excessive use of tobacco not only weakens the muscles of the eye, but also produces a lowering of the acuity of vision and a form of color-blindness. I can recall an instance of this peculiar form of blindness.

Professor Chisolm, of Baltimore, some years ago had a patient, a planter's wife from one of the Southern States, consult him for defective vision, and who was also blind to certain colors. Professor Chisolm, after making an examination with the ophthalmoscope, and who up to this stage of

the examination had not asked her anything as to personal habits, turned to her and said, "If you were a man I should pronounce your case one of tobacco amblyopia, or color-blindness due to excessive use of tobacco." The lady, completely surprised at the keenness of the observation, confessed that she was an excessive smoker; she and her husband lived alone in a retired part of the country, and in the evening after dinner she would light her husband's pipe, at first taking but one whiff; as time went on she would increase the number of whiffs, until she gradually became addicted to the use of tobacco.

How often we hear of the sudden deaths of young men or individuals in the prime of life! Could we read between the lines, or, in other words, dissect that nervous system, we might read there, or find the evidence of over-indulgence in tobacco.

Dr. Martin, of Manchester, writes: "The injurious effects of smoking may not, except under very careful testing, become apparent for years. In many cases it may be difficult to prove that certain diseased conditions are chiefly or wholly attributable to smoking, but where our knowledge of disease processes is very exact, and especially where we have undoubted methods of testing the symptoms presented, the proof of the adverse action of a particular agent may be proved beyond doubt."

With smoking, I class the chewing of tobacco as a very grave evil. The filthy habit which compels street-car companies to exhibit placards in their cars prohibiting spitting, speaks in words stronger than I can use. It is a disgrace to American manhood that such a recourse had to be taken.

We read that Professor Pfeiffer has discovered the bacillus of influenza in sputum. Is it surprising that influenza exists in this city, when every street pavement or public building is one large cuspidore?

Let any one take a walk down Broad Street on a Sunday afternoon, or pass through the archways of our public buildings, and it makes one wish that we had a law prohibiting the sale and use of chewing tobacco and expectorating in public places. The chewing of tobacco as an indirect destroyer to

vision ranks second to smoking, and every boy should be severely punished for using it.

One thing to which attention has been recently called is that the women of this generation are proportionately larger than men. If such is the fact, may it not be due to women abstaining from the use of tobacco?

Large sums of money are voted and many laws passed for all kinds of sanitary precautions; medical colleges vie with each other in selecting the ablest and best instructors to guide medical students toward becoming the keen guardians of the public health, but what does it avail when these patent evils remain unfettered! Do not misunderstand my imputations against the use of tobacco; a large gulf lies between the use and abuse of the fragrant weed. Men who have gone through a certain amount of mental strain are the better for smoking one, two or three cigars daily; they have a soothing effect upon the over-wrought nervous system, and smoking brushes away the cobwebs and makes man a more sociable creature. Any excessive indulgence in smoking is sure to produce evil results, but the chewing of tobacco must be condemned at all times.

Another source of injury to vision is the excessive use of alcohol in whatever form it is taken into the system. The drinking of beer or wine acts in a deleterious manner upon that part of the eye called the crystalline lens.

Excessive wine and beer drinkers are very prone to have cataracts before they have passed the forty-fifth mile-post in their lives, while whiskey drinkers are subject to affections of the retina and optic nerve.

There are also certain drugs which produce a bad effect on vision. It is said that Americans are fast becoming a quinine-eating people. I do not wish for a moment to speak against any drug so important to the pharmacopœia, but I must enter my protest as an ophthalmic surgeon to the indiscriminate use and abuse of this valuable therapeutic agent.

I am sure that certain intraocular affections may be traced to the abuse of this drug. I have in my possession the notes of several cases where blindness was directly traced to excessive doses taken at short intervals.

One of these patients had a very sad ending. This man

spent several months in the Valley of the Amazon, and while there contracted ague. To break up the severe attacks of chills and fever, he was obliged to literally feed upon quinine. He continued this treatment until his eyesight began to fail, when, upon his return to this country, he consulted me about his blindness, but was already beyond ophthalmic aid. I could continue this chapter on the abuse of this invaluable drug, but I must pass on. Other drugs which are also injurious to eyesight are chloral, opium, and the bromides.

Cosmetics which are placed in the eye to heighten its lustre should be avoided, as they are always dangerous; eye balms of all kinds should be avoided, especially if the ingredients are rich in the proportions of lead.

The same observations are applicable to the dyeing of the hair and eyebrows.

There is a case on record where a diminution of vision has been traced to the wearing of an artificial wreath of flowers.

In ancient Greece and Rome, the business of painting the skin was a work of art, and ladies of wealth and fashion kept female slaves for the express purpose, but their paints consisted for the most part of the less injurious materials procured from the vegetable or animal kingdoms.

Another source of failing vision may be traced to impeded circulation. The wearing of tight neckwear, such as collars which are too small or shirt bands or neckties tightly drawn, should be avoided; this prevents the downward column of blood returning to the heart; the blood, being retarded, is dammed up in the capillary blood vessels; the heart, driving against this volume of blood, is sure to cause dilatation of them, and certain diseases develop. We are almost sure to have fulness of the head or headache following. To say the least, the equilibrium of the circulation is destroyed.

The same rules hold good to constriction of other parts of the body.

A subject which is commanding some attention is, "Are type-writing machines injurious to vision?" The individuals who find the most trouble with their vision are those who are students of this new calling. Close attention and concentration of vision is necessary to produce accurate copy. After one becomes so thoroughly proficient in manipulating the

keys that he acts automatically, much relief is given to the eyes, but until this is accomplished, a great many, especially young girls, suffer from eye strain.

I have given this matter considerable attention for a long time, and I am constantly consulted by individuals who earn a livelihood by working at such machines six to eight hours daily and in some cases longer, and I find that the arrangement of keys has much to do with those afflicted with ocular disorders, for those who wrote on machines having circular key-tips almost always had eye trouble.

Among the many patients who have consulted me, I quote from one who has been using various machines now on the market ; his language is as follows :

“ In considering the various type-writing machines now in use, and the effect they have on the eyesight of those using them, I will make use of but three—namely, the Remington, Caligraph and Hammond, as these are the leading machines, and the ones most in use.

“ The key-board of the Remington machine contains thirty-eight keys, circular in form, with the letters printed on white paper covered with glass. On account of their arrangement, shape, size and color, they are very confusing, having a tendency to run together.

“ The Caligraph has this same fault in a much more aggravated form, from the fact of its having a larger number of keys, thus tending to add to the confusion or running tendency which a multiplicity of keys produces.

“ The Hammond has its key-board arranged in the form of a semicircle, each key being made of ebony wood and shaped somewhat like a piano key, with the letter cut on them and filled with white enamel. The thirty keys represent, collectively, ninety characters, having fewer keys and more characters than any other machine, and yet the keys are made of such material, color, and shape that they do not tire the eyes in using them.”

This patient has been using type-writing machines almost constantly for the past five years ; during the first two years he used a machine with round finger tips or keys, and he always experienced a burning sensation in the eyes, as if small particles of sand had lodged under the lids ; the smaller blood-

vessels looked congested, and these symptoms became so aggravated that he consulted my assistant (I being in Europe at the time), to see if something could be done to relieve him from his misery. He could not read at night after working through the day. Prior to using this machine he had had no eye trouble of any kind. My assistant, who made a careful examination, found that he had no visual defect. He exchanged his type-writing machine, and after three years' constant use he has had no further trouble with his eyes.

Another patient, who has had a somewhat similar experience, tells me that while she has never used the Ideal Hammond, the black keys of the Caligraph are less hurtful to her eyes than the white keys of other machines.

Before a writer becomes so proficient that he can perform his work automatically, his eye strain must be enormous. If any visual defect exists I prescribe the proper glasses, and if round finger tips or keys are used I advise a change to be made to machines having rectangular keys, which I find are the least hurtful to the eyes.

Another source of eye strain is produced by constant reading in railway carriages. I have often been impressed by the avidity of passengers seizing their morning paper and devouring column after column to and from their places of destination. On account of the oscillating movements of the car the paper is held inside the proper reading distance; this is done to get a larger image of the reading matter, but in doing so the muscles of accommodation as well as the converging muscles are kept on a severe strain.

These same men pass rapidly from station to their places of business, neither looking to the right nor left of them, but with thought intent and fixed gaze they still hold these muscles with a strong grip; all day at business the same, and a repetition of the morning's work upon the train homeward bound at night, and so for ten or twelve hours those patient eyes are forced to work, which keeps up the strain, and on account of the tension more blood is brought to the parts, which in a short time produces failing sight and chronic congestion of the eyelids and eyeballs.

We must not forget that a certain amount of recreation is not only conducive to good health, but is absolutely necessary

to preserve the same. Men who are constantly employed either at reading, drawing, adding up columns of figures or near work of any kind, should take short intervals of eye rest, especially those working upon white or glazed paper, wood-engravers or etchers. Nothing gives such eyes greater relief than a green disk or square of sufficient size, suspended on a direct line of vision at or against a wall on which the eyes can rest ; but best of all if that individual can look upon a green grass plot or green trees.

School-rooms, instead of having blank walls, would be a source of great comfort to the overtaxed eyes of children if they were decorated with pastoral scenes, or any picture representing long distances.

Since the above was written, I have had an interview with Mr. Paul Kavanagh, Chairman of Public School Property of this city, and he tells me that this idea has in a measure been adopted in the F. M. Drexel School, Sixteenth and Moore streets. The walls are not only decorated with maps, but also with pictures of animals inhabiting certain portions of the globe. For instance, the map of Africa showing the black race, also that it is the land of the elephant, etc.

These drawings or pictures not only make school-rooms attractive, but, what is more important, give the eyes a rest while these same pictures are another means in the development of the minds of the smaller children by object lessons.

One of the most prominent and popular professors* in the Boys' High School, who speaks with an experience of twenty-five years, tells me that he has found the old-fashioned school maps, with their glazed surfaces, not only injurious to vision, but, on account of their highly reflective surfaces, difficult to see from certain positions. This style of map should have been banished from school-rooms years ago.

Pictures in which great distances are shown are the best for sitting-rooms. The drop curtains in theatres should have scenes painted on them showing great perspective ; it is a rest to the eyes, after the concentrated effort made in trying to watch the facial expressions or eyes of an actor, to look upon such a picture. The success of Russell Smith's scenic

* Professor E. J. Houston.

paintings on drop curtains was that he always gave great perspective to his drawings.

Several theatres in this city have drop curtains in which perspective is absent, and the result is that no relief is given the eyes after each act, and people with the least visual defect always suffer from eye strain after spending an evening in such places of amusement.

Individuals who have to earn a livelihood with the pen should write on paper tinted green, blue, or yellow. French authors use green tinted paper, and say that they are greatly relieved from eye strain by doing so.

It is essential to preserve good sight by such means as will not interfere with good health, and the first step in that direction is to have plenty of light and air; not the heated atmosphere of the average American business place or home. I am sure that this high temperature helps to ruin people's eyes more than we like to admit; too much light, especially if it be reflected, is particularly injurious; it produces an overstimulation to the retina.

From what I have gathered from clinical observation, I find that a lesser quantity of light is less injurious to an eye than an excessive bright light. For example, miners have less visual defect than machinists who work under electric lights.

The eye is so delicately adjusted that if one were to heed its warnings very little injury would result to it, but unfortunately men and women alike seem to think that at all times and under all physical conditions can this little organ be kept at high pressure; they never think that general diseases or such as usually manifest themselves in other organs may develop special eye diseases.

After the last epidemic of "la grippe" I was particularly impressed with the large number of patients complaining of the loss of power of the converging muscles of the eye. Upon investigation, I found that while these patients were confined either to bed or home they would read incessantly.

The result of this overtaxation was weakened eye muscles, while so long as they remained unsupported by prisms the patient suffered with pain over the eye region, headaches and other evidences of eye strain.

Individuals when suffering from any depressing disease

should be guarded as to the length of time they read or perform near work, as they should be to physical exertion of any kind.

It is not my purpose to go into a discussion of the medical side of the many injuries the eye receives in an indirect way, but persons who have a predisposition to catarrhal ailments, a rheumatic or strumous diathesis, must carefully avoid all sudden changes of temperature or sudden exposure of any kind, as the eye not infrequently becomes the culminating point of disease. I have seen such people greatly frightened by the sudden appearance of flying specks before their eyes.

People prone to over-eating with little or no exercise frequently have this condition as well, which is known to the profession as "*Muscæ Volitantes*." They are not, as many people think, the forerunners of cataracts or blindness—in fact, so long as they remain minute specks they are harmless. One thing they point to, and that is, the eye should have rest and the body made to work; an inverse condition of affairs should be brought about to that usually existing; plenty of out-door exercise and very little near work upon white paper.

The state of the mind has much to do with vision. Violent affections or great passion, long-continued grief and care, cause a diminution of the eyesight. It is recorded that extreme terror has induced blindness; violent anger or rage lessens the acuity of vision to a marked degree. All this acts like so many corroding cares perpetually undermining the stock of good sight nature has given us.

The Archbishop of Seville, who died at the age of 110, when asked the secret of his longevity and good eyesight, said, "By being old when I was young, I find myself young now I am old."

There is one form of visual defect to which I have called attention in my former lectures before this Institute, and that is color-blindness.

In this discourse I shall allude to it not as a congenital defect, but as an acquired condition brought about by abuses.

The early history of cases of color-blindness have been imperfectly recorded; one goes back to 1684, and her case is recorded by Dr. Dawbeny as one whose vision was excellent, but unable to appreciate any other color than white or black,

although she could often read for nearly a quarter of an hour in the greatest darkness. Another case which is recorded more in detail is described by Robert Boyle, who writes, on p. 599, vol. iii., whose philosophical works were published in 1725, as follows :

“ Two things were particularly odd in this case (he speaks of a gentlewoman twenty years of age). First, she is often troubled with flashes of lightning that seem to issue out like flames about the external angle of her eye, and often make her start, put her into frights and give her melancholy thoughts.

“ Secondly, what is more strange and singular, she can distinguish some colors as black and white, but not others, especially red and green. And when I produced her a bag of fine glossy red, with tufts of sky-colored silk (blue), she looked attentively upon it, but told me that, to her, it did not seem red, but of a dark or dirty color, and the (blue) tufts of silk, she said, seemed to be of a light color, which she compared to the silken stuff of the petticoat worn by the lady who brought her to me, and, indeed, the blues were very much alike.

“ She further said, that the meadows did not appear green, but of an odd darkish color, and that when she had a mind to gather violets, though she kneeled in the place where they grew, she could not distinguish them by the color from the grass about them, but only by their shape or touch. And the lady who was with her took thence occasion to tell me that when she looks upon a Turkey carpet she cannot distinguish the colors, unless of those parts which were white or black.”

Medical records show that this subject remained undisturbed until Dalton described his own case in 1794, and he appears to have been in ignorance of Boyle's writings. After this period it was called “ Daltonism,” and even to this day it is sometimes known by this same name.

In 1846 Professor Wartmann's elaborate paper was translated and published in *Taylor's Scientific Memoirs*, but it was left to Dr. George Wilson, of Edinburgh, who, in 1853, contributed elaborate articles to the *Edinburgh Monthly Journal of Medical Sciences*, and in 1855 published the best book writ-

ten in English on the subject. Since Wilson's day, many articles have appeared on this subject ; among our own countrymen, Dr. B. Joy Jeffries, of Boston, takes the lead.

A continuation of the knowledge of colors is very important, when we know that engine-drivers or men on ocean steamers have daily to peril human life "on the indication of a colored flag or light."

Congenital color-blindness is easily detected, and color-blinds rarely apply for important positions in which color plays a rôle in the occupation. It is after men have secured a position and are consumers of tobacco or have passed through a severe illness that they should again be made to undergo examinations, for tobacco, quinine, and santonine enter largely into the class of drugs which might produce such a defect.

Professor John Speiller recently read a paper on the effect of santonine produced upon his color sense, which from a scientific point of view is interesting. I would, therefore, repeat, that all men, such as engine-drivers and seamen, should undergo an examination for color-blindness at least twice a year.

Dickens says somewhere that "nothing is sure in this world but death and the tax-collector." I may add, that when the majority of people reach their forty-fifth year they are sure of falling into the hands of the oculist and the optician.

One of the first concomitants of age is acquired far-sightedness or presbyopia. This necessitates wearing certain glasses for near work.

Whenever a man or woman about forty-five years of age finds himself or herself reading or threading a needle at arm's-length, their action tells that the little muscle governing the accommodation is growing weak and needs assistance. By persisting in forcing this muscle to work, much injury is done to the eyes, but by having it corrected many a frown would be saved to man and many a wrinkle to woman.

Not only is it important to get glasses, but of more importance still is it to see that you get the kind suitable for each eye. It is comparatively rare to find two eyes exactly alike, and the aid of an ophthalmic surgeon who is not only competent theoretically but practically should be sought.

Our city is noted for its skilled opticians, but it is also to the discredit of many of these same opticians that they will sell glasses to any one who chooses to buy them. I do not for a moment entertain the thought that trained opticians cannot give glasses which will answer a given purpose ; nay, I am sure that they can correct the simpler forms of presbyopia as well as any ophthalmic surgeon and optician.

Men whose knowledge is acquired by long experience are often much more useful than those having a theoretical knowledge only. When the optician finds, however, that the vision is not the same in each eye, or where astigmatism exists and the patient complains of symptoms now recognized as eye symptoms, then his province ends and the ophthalmic surgeon's work begins.

At one time the druggist could exercise the prerogatives of the physician ; is it of lesser import that the optician should assume the prerogatives of an ophthalmic surgeon ? If the law now prevents the one from prescribing drugs, the other should also be prevented from prescribing glasses, outside of a certain range of years or certain physiological conditions.

As age increases, excessive reading, writing, or work upon very small objects must not be persisted in, especially if the eyes grow tired. It must be remembered that the elasticity of the eyeball is lost, and any persistent effort may produce hemorrhage in the retina, or such a strain as may lead to other serious troubles.

Old people should be careful not to read with a strong artificial light falling on a white glazed surface. It would be better for such people if our monthly magazines were printed on paper of a neutral tint.

I now come to speak of cataracts, the most common form of eye disease in elderly people ; and being so common, it is astonishing in these enlightened days that the majority of people still believe the cataract to be a skin growing over the eyes.

In Vigon's *Chirurgie*, published in 1571, I quote as interesting reading his description of a cataract : " Oftentimes, there descend from the head certayne grosse and flegmatyke humors covering the apple of the eye and there remaining, and engrossed and made thicke, which is named of the doctors, Cataract."

It was not until about 1700 or a few years later that the real seat of cataract was understood ; until this time it was supposed by the medical men and oculists to be a growth or a skin, as described above, and, like so many sayings, was handed down from one generation to another and has lived to this day.

The removal of cataract can only be performed by an operation. The history of operations for the removal of cataracts dates from the remotest antiquity. It was known in Egypt under the reign of Ptolemy-Soter ; traces of it are found in the "most ancient traditions of Hindustan and the Chinese Empire." Galen states that in his time there were oculists at Rome and Alexandria who exclusively practised this operation. In ancient and comparatively recent times the operation was performed by thrusting a needle into the eyeball a short distance behind the cornea, and turning the opaque lens downward or dislocating it completely ; this removal of the cataract aided by a convex lens then gave the patient vision.

The operation followed by ophthalmic surgeons to-day is entirely different ; an incision is made through the cornea with a delicate knife, and the cataract or opaque lens removed through this opening.

Many individuals with cataracts dread its removal, but with the aid of that powerful drug cocaine (which I do not believe the ancients knew anything about, and is possibly one of the few new things under the sun) and a skilled hand, successful restoration to vision is almost always anticipated.

Of all the special organs of sense the eye stands prominent among them all, like a barometer, to indicate the physical condition within the body.

When patients are brought to us with red or inflamed eyelids and a history of a succession of sties, do we simply give eye salves ? No ! First, we seek for causes more remote, and find them in defective vision.

When ulcers of the cornea exist, it shows that the blood must be impoverished and food is not assimilated.

When that white band around the outer edge of the cornea called the "Arcus Senilis" is visible, what does that indicate ? Your physician will tell you that fatty degeneration

of muscular tissues is taking place, and nothing must be done to produce over-action of the heart.

When the eyelids are puffy and seem to be filled with fluids, it tells the observing physician facts more potent than words.

The pupils of the eyes speak for changes going on in the brain or upper portion of the spinal cord, and when we examine the interior of the eye with the ophthalmoscope, what a new world is unfolded to the observing and keen ophthalmic surgeon ! We are thus able to tell whether a patient is suffering from tumor of the brain or meningitis, Bright's disease or diabetes.

In this lecture I have tried to call attention to many evils which not only directly injure health, but the vision as well. It is a melancholy circumstance that so many young persons will deliberately try to undermine their good health, so that when they reach the age of fifty in years, they are at least seventy in aches and pains.

“ Hard toll can roughen form and face,
And want can quench the eyes' bright grace.
Nor does old age a wrinkle trace
More deeply than despair.”

—*Marmion*.

In conclusion, I venture to give you a few more hints on the care of your eyesight :

1. Avoid sudden changes from dark to brilliant light.
2. Avoid the use of stimulants and drugs which affect the nervous system.
3. Avoid reading when lying down or when mentally and physically exhausted.
4. When the eyes feel tired, rest them by looking at objects at a long distance.
5. Pay special attention to the hygiene of the body, for that which tends to promote the general health acts beneficially upon the eye.
6. Up to forty years of age bathe the eyes twice daily with cold water.
7. Do not depend on your own judgment in selecting spectacles.

8. Old persons should avoid reading much by artificial light, be guarded as to diet, and avoid sitting up late at night.

9. After fifty, bathe the eyes morning and evening with water so hot that you wonder how you stand it ; follow this with cold water, that will make them glow with warmth.

10. Do not give up in despair when you are informed that a cataract is developing ; remember that in these days of advanced surgery it can be removed with little or no danger to vision.—*Journal of the Franklin Institute, June, 1892.*

THE MEDALS, JETONS, AND TOKENS ILLUSTRATIVE OF SANITATION. SUPPLEMENT III.*

By DR. H. R. STORER, of Newport, R. I.

WITH the two supplements to my paper that appeared in THE SANITARIAN for July, August, and September, 1891, there seemed good reason for supposing that the subject must be very nearly exhausted. During the past year, however, an additional number of medals bearing upon sanitation have come to my knowledge. There may be those who will be glad to hear of them.

SECTION I. *General.*

In addition to the medals of Moses already given, Nos. 1680–84 and 1906, there are the following :

1933. Obverse. Moses with the Tables, upon Mt. Sinai.

Reverse. The Tables, inscribed in Hebrew. Legend : Thve Das So Wirst Dv Leben. 12.

Devegge, Mynt-og Medaille-Samling, Copenhagen, 1851, No. 1414 ; Storer, " The Medals of Natural Scientists," *Proceedings of the Newport Natural History Society*, 1892, p. 26, No. 56.

He is also mentioned upon twenty-eight of the Wittenberg Pestthalers, which have already been enumerated in Section X., The Plague. They are, to specify them,

* Continued from Vol. XXVIII., p. 255. The preceding portions will be found in the numbers for May, July, August, October, 1887 ; February, April, July, August, November, 1888 ; February, March, April, June, September, November, 1889 ; January, February, May, July, August, September, October, 1890 ; and July, August, and September, 1891.

P. and R., Pest. in nummis., Nos. 234-38, 251-252, 254-57, 261-70; *ibid.*, Pestamulete, pp. 475-82.

There is another similar piece, unmentioned by P. and R.

1934. Obverse. The Crucifixion. Legend: Vt. Moses. Exexit. Serpentem (etc.) Beneath the cross: H(einrich) R(etz)
1536. Below: Spes. Mea. In. Deo. Est.


Reverse. The Creation of Eve, Fall of Adam, and Expulsion from Paradise. Legend: Et. Sic. Vt. In. Adam (etc.) Exergue: Ioannes. Fridericus. Elector. Dux. Saxonie. Fieri. Fecit. Silver.

Hauschild, Beitrag (etc.), No. 1205; Storer, *loc. cit.*, p. 27, No. 58.

ENGLAND.—John Howard, of London. (See Nos. 31-56 and 1689.)

In 1890, upon occasion of the centennial of Howard's death, the Russian Government offered, through the St. Petersburg Judicial Society, at the Fourth International Prison Congress, prizes for dissertations upon "The Work of John Howard in the History of Prison Reform," as below.

1935. Obverse. Bust, to right. Inscription: Johannes Howard. Exergue: Alios Salvos Fecit.—Vixit Propter Alios. (The portrait and legend are taken from the monument at Kherson.)

Reverse. Within cabled circle: In | Memoriam | Johannis Hovard (*sic*) | Qui Vitam Suam Miseris | Consecravit, Egregio | Hujus Operum Historico (*sic*).— |  | —. (In the blank space, the name of recipient.) Gold.

United States Bureau of Education, Circular of Information No. 2, 1891, figure on frontispiece.

There were to be two sizes of these medals; a single one of the first, and two of the other. The larger was not awarded.

1936. Obverse. Bust, to left. Below: A. B. Wyon. Inscription: John Howard F.R.S. Sheriff of Bedford. 1773.

Reverse. In field, a sheaf of grain, erect, within the following: Howard. Prize. Founded. 1873. William A. Guy M.B.F.R.S. President. Inscription: Statistical Society. Established. 1834. Bronze. 47. 75 mm. Cat. of Medals of Royal Society of London, 1892, No. 64.

Dr. Edmund Alexander Parkes, of Netley. I am at last

enabled, by the aid of Surgeon J. S. Billings, U.S.A., and Dr. Th. Borchert, Secretary of the Army Medical School at Netley, to give accurate descriptions of the two Parkes medals, about which there has been confusion :

(No. 57.) Obverse. Head, to left. Beneath neck : J. S. & A. B. Wyon. Inscription : Edmund Alexander Parkes. | B.1819-D.1876

Reverse. Within laurel branches tied by ribbon : Parkes | Memorial | Medal Legend : 'H ΠΕΡΙ ΤΟ ΣΩΜΑ ΚΑΙ ΤΗΝ ΨΥΧΗΝ ΤΤΙΕΙΑ Exergue : an elongated star. Gold, bronze. 32.

This, the Triennial prize at Netley, was described as No. 57, and also as No. 1066*a*. There is, however, no view of the Royal Victoria Hospital upon the medal, as had been intimated by Dr. E. M. Hunt.

(No. 1667.) Obverse as preceding.

Reverse. Device and field inscription as preceding. Outer inscription : Army Medical School | Hygiene (between elongated rosettes.) Bronze. 32.

This was imperfectly given as the description of No. 57, after No. 1293. In the Government (Lee) and Fisher collections.

BELGIUM.—Dr. Martin Schoenfeld (1796–), of Brussels. “Recherches sur l'état sanitaire des houilleurs pendant la periode de salubrité des mines en belgique.” Bruxelles, 1859, 8°. See the second medal of Dr. Florent Cunier, No. 2046.

FRANCE.—Dr. A. A. Parmentier. In addition to No. 73 there is a commemorative jeton, struck during the Franco-German War, relative to the aerial postal service.

1937. Obverse. A balloon. Inscription : G^t De La Défense Nationale.

Reverse. Le Parmentier. 11 Decembre. (1870.) Tin. Van Peteghem Cat., Paris, I., 1874, No. 889.

GERMANY.—Dr. Friedrich Hoffmann, Jr. (1660–1742), of Halle. “Dissertationes physico-medicae (etc.) ad sanitatem tuendam maxime pertinentes.” Leyden, 1708, 8°.

1938. Obverse. Bust, to right. Beneath : Koch. In-

scription : Frid. Hoffmann. Reg. Prvss. Cons. Intim. Medicvs Et Profes. Lesser has Frider., Concil., and Professor.

Reverse. Legend : Adversa Et Philosophvm Et Christianvm Probant. Within field : Natvs | Halæ MDCLX. | Patre | Friderico Archiat. Sax. | Primvs Ibi Professor | Jam Senior | Artem Qva Avgvstiss. Cæsari | Regit. Mvltisq. S. R. I. Principib. | Profvit | Per XLIV. Ann. Docvit | Et In | Sistema Rationale | Redegit. | — | CIO IOCC XXXVII. Lesser has Archiatro, Augvstissimo, Regibvs, Mvltisque, Principibvs and Annos. Silver. 30. 47 mm.

Lesser, *loc. cit.*, p. 66; Lochner, "Sammlung Merkwürdiger Medaillen," vii., vorrede; Rudolphi, p. 76, No. 321; Kluyskens, ii., p. 39, No. 1; Duisburg, p. 121, cccxxiii., 1.

1939. Obverse. Bust, to left. Beneath : Wolf F. Inscription : Fridericus-Hoffmannus

Reverse. Natus | Halæ | In Magdeburgica | An. M. DC. LX. | Obiit | An. M. DCC. XLII. | — | Series Numismatica | Universalis Virorum Illustrium | — | M. DCCC. XXIII. | Durand Edidit Upon rim : Monachii Bronze. 26. 40 mm.

Rudolphi, p. 76, No. 322; Kluyskens, ii., p. 40, No. 2, fig.; Duisburg, p. 122, cccxxiii., 2. In the United States Mint collection and my own.

Besides these personal medals, there are still others of a general character.

BELGIUM. *Ypres.* 1851.

1940. Obverse. The City Arms. Inscription : Jeton De Presence Exergue : S P Q Y (Senatus Populusque Ypresensis.)

Reverse. 28 Mai : Salubrité Publique Reglements. (Etc.) Silver, bronze. *Revue belge de numismatique*, 1876, p. 370.

FRANCE.

1941. Santé publique. 1800. Bronze. 31. 50 mm. Kluyskens Cat., April 12th, 1886, p. 46, No. 76.

1942. Obverse. France crowning an angel. Agriculture, Salubrité.

Reverse. A female and angel. Sous Le Regne De Louis XVIII Brevet D'Invention (etc.) Bronze. 31. 50 mm. Corsi Cat., Florence, December 3d, 1891, No. 4020.

1943. The device of the Good Samaritan, in addition to the medals already described, is represented upon that of the Surgeons' Guild at Groningen, Holland. *Revue belge de numismatique*, 1858.

1944. There is also a German piece of this character, with the legend: "Es War Ein Mensch, Der Ging Von Jerusalem (etc.) Thieme, *Numismatische Verkehr*, July, 1892, No. 2897.

The following are allegorical.

1945. La République Malade (etc.) 1849. Lead. 45. 72 mm. Corsi Cat., No. 4200.

DENMARK. *Tønning.*

1946. There is a medal of 1714 which bears the legend: Sic Non Digesta Vomenda. Thieme, *loc. cit.*, July, 1892, No. 2825.

ITALY. *Duchy of Reggio.*

1947. Cvivs.Crvore.Sanati.Svmvs. (Hercules II. of Este [1534-1559].) Gold. Reinmann Cat., Frankfort, 1892, No. 7703.

STATES OF THE CHURCH.

1948. Obverse. Bust, to left. Gregorius XVI Pont. Max. A. VII.

Reverse. Solatori Ægrotorum 1837. Bronze. 23. 36 mm. Corsi Cat., No. 5101.

The above inscription was not intended merely allegorically, but referred also to the interest taken by the Pope in the hospitals of Rome.

1949. Obverse. St. Luke, sitting. Omnis Medela A Deo Est. S. Lucas Medicus.

Reverse. The Virgin and a monk. Potior Animæ Salus Quam Corporis 1863. Bronze. 18. 28 mm. *Ibid.*, No. 5104.

SECTION II. *Water Supply.*

BRUSSELS. 1851.

1950. Obverse. View of barracks.

Reverse. Enquete Sur La Distribution Des Eaux. (Etc.) Bouhy, *Revue belge de numismatique*, 1883, p. 76, No. 114. Do., 1853.

1951. Obverse. View of building. Inscription: Con-

struit 1852-1853 Exergue : Hospice Pour Les Aveugles A. Bruxelles—I. Wiener.

Reverse. 1853. 7 Avril Loi Qui Incorpore Le Quartier Léopold (Etc.) Le Roi pose la première pierre (etc.) de l'aqueduc de Bruxelles a Witterzee. (Etc.) *Ibid.*, p. 77, No. 116.

1952. Aqueduct of Braine l'Alleud to Brussels. 1853-54. Silver. *Ibid.*, p. 78, No. 117.

Do. 1855.

1953. Obverse. View of Mint.

Reverse. Achèvement Du Tronc Principal De L'Aqueduc De Braine L'Alleud. (Etc.) *Ibid.*, p. 78, No. 118.

Do. 1856.

1954. Obverse. The Arc de Triomphe.

Reverse. Achèvement De Travaux Pour La Distribution D'Eau. (Etc.) *Ibid.*, p. 79, No. 119.

Ghent.

1955. Fountain at G. 1848. *Ibid.*, p. 124, No. 192.

Ypres.

1956-57. There are three varieties of No. 1692, one of them struck in 1689, and the others in 1692, with the legends Nobis Jam Melius Nitet, and Fundit Inexhaustas. *Ibid.*, 1877, p. 15.

There are also two additional French tokens relative to water purification.

1958. Obverse as No. 133 ; the oak branch to left.

Reverse. Eau Clarifiée Et Dépurée. In field · Une | Voie | — | 1807. 13. 22 mm. Trésor de num., Empire Français, p. 52, pl. XXIII., No. 10.

1959. Obverse. Etablissement Au Terrain. In field : X | Cuchet | Du Commun | Et | Comp^{ie} Below : an oak branch to right.

Reverse as preceding. *Ibid.*, p. 52, pl. XXIII., No. 9.

SECTION III. *Bathing.*

THE UNITED STATES.

There exists the following token :

1960. Dr. | Shattuck's | Water Cure | Waterford | Me.
(Counterstamp.)

In my collection, upon an United States cent of 1828.

GERMANY.

A. H. E. von Pfuel, founder of the Swimming School at Berlin.

1961. Obverse. Bust.

Reverse. Inscription: (Twenty-fifth year Jubilee, 1842.)
Bronze. 22. 35 mm. Zschiesche and Koder Cat., October, 1891, No. 2584.

AUSTRIA. *Vienna.*

1962. Amateur Swimming Club. Silver. 21. 33 mm.
Sylva-Tarouca Cat., Vienna, 1892, No. 2757.

1963. *Vöslau*. Prize for swimming race. 1890. Silver.
21. 33 mm. *Ibid.*, No. 2741.

SECTION IV. *Mineral Springs.*

UNITED STATES.—Connected with No. 207, there is the following:

1964. Knight's Mineral Water Saloon. (Counterstamp upon an United States quarter dollar.) Massamore's Forty-first Cat., November 3d, 1892, No. 442.

ENGLAND.—Dr. C. G. B. Daubeny, of Oxford. In addition to the medals already given, Nos. 161 and 1468, there is a third.

1965. Obverse as that of No. 1468.

Reverse. Wreath of laurel. Within, in five lines: Meeting At Cheltenham August 6 1856. Bronze. 34. 53 mm. Wroth, "English Personal Medals in the British Museum," *Numismatic Chronicle*, vi., 3d series; Grueber, "English Personal Medals from 1760," *Ibid.*

GERMANY.—Dr. Friedrich Hoffmann, Jr., of Halle.

"De Thermis Carolinis." Halle, 1705, 4°; German edition, Dresden, 1714.

"Kurtzer Unterricht von dem in Fürstenthum Halberstadt zu Zornhausen wieder entsprungenen Gesund-Brunnen." Halberstadt, 1689, 4°.

“Gründliche Anweisung durch vernünftigen Gebrauch der mineralischen kalten und warmen Gesund-Brunnen, insonderheit des Carls-Bades,” etc. Halle, 1717, 8°.

“Dissertatio de fontibus medicatis Lauchstadiensibus,” etc. Halle, 1723, 4°.

“Examen Chymico-Medicum fontis Sedlicensis in Bohemia.” Halle, 1724, 4°.

“De præcipuis medicatis Germaniæ fontibus, eorumque examine chymico-medico.” Halle, 1724, 4°.

“De acidulo Veteraquensibus in Silesia, vulgo Altwasser, Sauerbrunnen.” Halle, 1731, 4°.

“Opuscula physico-medica de aquarum mineralium elementis,” etc. Ulm, 1726, 4°.

“Gründlicher Bericht von der Würckung (etc.) des zu Sedlitz (etc.) Brunnens.” Halle, 1725, 4°; Dresden, 1725, 4°; Frankfort and Leipsic, 1726, 12°.

“Kurtzer und gr. Bericht von der vortreflichen Krafft und Würckung des Carls-Bad-Seltzers.” Halle, 1734, 4°.

“New Experiments and Observations upon Mineral Waters,” etc. London, 1743, 8°.

A portion of the above, and under Section X., Epidemics, “A Dissertation on Endemial Diseases,” etc., London, 1746, 8°, were erroneously attributed to Dr. Jakob Hofmann, of Nuremberg (No. 178). The two medals of F. Hoffmann have just been given under Section I., Nos. 1938–39.

There is the following seal, of Altmark and Priegnitz in Prussia.

1966. Obverse. The arms of the establishment; an owl above. Inscription: S D Bader So Wundartz Sein In Der Alten M(arck) V(nd) Prig(nitz) Below, within an oval of beads: 16–69 Iron. Oval. 35 x 40 mm.

Weyl, One Hundred and Twenty-second Cat., 1892, No. 1325.

ITALY. *Tabiano, Duchy of Parma.*

1967. Obverse. Bust, to left. M. Ludov. Arch. Austr. (etc.)

Reverse. Hygieia, seated, to right. Ad Scatebras Tablani (etc.) 1842. Silver, bronze. 35. 56 mm. Corsi Cat., No. 1545.

SECTION V. *Drainage.*

HOLLAND.—In addition to the medals of the drainage of the Lake of Haarlem, by Menger, in 1852, No. 1914, and by Elion in 1853, No. 1775, there is a third.

1968. By M. C. de Vries, Jr. 1853. Bronze. Bom & Zoon Cat., December 14th–21st, 1891, No. 1635.

BELGIUM.

1969. "Percement de nouveaux canaux." 1752. Kluyskens Cat., p. 189, No. 1722.

1970. Canal from Coupure to Ghent. 1753. *Ibid.*, p. 189, No. 1724.

1971. Canal of Louvain (with vessel). 1754. *Ibid.*, p. 189, No. 1725.

The medal of 1753 (without vessel) has already been mentioned, No. 1758.

1972. Opening of Canal of Terneuzen. 1827. Silver. 13. 21 mm. *Ibid.*, p. 201, No. 162.

1973. Thanks for Do. 1827. Silver. 28. 45 mm. *Ibid.*, p. 201, No. 165.

1974. *Ypres*. 1849. Obverse. Similar to that given under Section I., No. 1940.

Reverse. Curement De L'Etang De Lillebek (etc.) Assainissement Des Quartiers Pauvres (etc.) Silver, bronze. 34 mm. *Revue belge de numismatique*, 1876, p. 370.

FRANCE.—In addition to the medals already given of De Lesseps, there is the following :

1975. Obverse. Head, to right. Inscription : A Ferdinand De Lesseps Les Delegates Des Toutes Les Nations.

Reverse. Delegates Au Congres International (etc. with names of the delegates). Bronze. 38. 60 mm. Corsi Cat., No. 2950.

POLAND.

1976. Obverse. Head of King Stanislaus August, to left. Beneath neck : I.P.H.(1765)

Reverse. Inscription in ten lines : Ne | Aquarum | Con-

fluxu | Subruatur | (etc.) Mikocki, Polnisch. Cat., Vienna, 1850, No. 2562.

SECTION VI. *Sewerage.*

BELGIUM.—*Brussels.* 1850. See under Cholera, No. 2015.

Do. 1859. See under Hospitals, No. 2097.

Do. 1865.

1977. Obverse. A church. Inscription : Temple Des Augustins. Below, to left : J. Wiener.

Reverse. Assainissement | De La Senne (etc.) 1865. *Revue belge de numismatique*, 1872, p. 148.

Do. 1867. See under Cholera, No. 2016.

Do. 1871.

1978. Obverse. Head (of Jules Anspach, burgomaster), to left.

Reverse. A female (the city) standing over the mouths of two sewers ; above them : 8 Mai 1867-16 Sept 1868 Inscription : 30 Nov^{bre} 1871. Inauguration Des Arches De La Senne. *Ibid.*, 1873, pl. XXVIII.; Brichaut, Méd. Hist. de Belgique, p. 61, pl. XXVII., fig. 33.

Tournay. 1849.

1979. Obverse. The Church of Nôtre Dame.

Reverse. 9 Mars 1849. Reglement Pour L'Assainissement Des Habitations Des Pauvres (etc.)

Bouhy, *Revue belge de numismatique*, 1883, p. 86, No. 131.

Ypres. 1849. See under Drainage, No. 1974.

ITALY. *Bologna.*

1980. Obverse. Heads, jugate, to right. Below : a star. Inscription : Napoleo Augustus Maria Aloisia Augusta.

Reverse. The city, and entrance of cemetery. Inscription : Cœmeterium Bononiense. Exergue : Lapis Auspicatis Porticus A Cœmet. Ad Porticum Mariæ Lucanæ Statutus A. MDCCCXI. Below : M(ercandetti) Bronze. 47. 74 mm. *Trésor de numismatique, Empire Française*, p. 101, pl. LI., No. 14. Corsi Cat., No. 2696. A pattern piece, the dies being early destroyed.

SECTION VIII. *Diet.*

ENGLAND.—Dr. Jonathan Pereira (1804–53), of London. “Treatise on Food and Diet,” etc. London, 1843, 8°, several editions.

1981. Prize medal Charing Cross Hosp. Med. School. I have not yet succeeded in obtaining its description.

FRANCE.—Dr. Isidore Geoffroy St. Hilaire (1805–61), of Paris.

“Lettres sur les substances alimentaires, et particulièrement sur la viande de cheval.” (Paris) 1856.

1982. Obverse. Bust, to left. Beneath : Albert Barre. Inscription : Isid^e Geoffroy-St. Hilaire

Reverse. Within field : La Société D’Acclimatisation A Son Président Au Digne Fils D’Étienne Geoffroy St Hilaire. 1857. Inscription : Société Impériale Zoologique D’Acclimatisation Fondée Le 10 Janvier 1854. Duisburg, Supplement II., p. 7.

Dr. Denis Papin, of Paris. In addition to No. 369 there is a token somewhat similar to that of Parmentier, just described in Section I.

1983. Obverse. A balloon. Inscription. G^t De La Defense Nationale.

Reverse. Le Denis Papin. 7 Octobre. (1870). Bronze, tin. Van Peteghem Cat., i., 1874, Nos. 851–52.

ITALY.

1984. There is an allegorical medal of Pope Innocent XII., 1699, representing the miraculous shower of manna. Legend : Egrediatur (etc.) Silver. Cahn Cat., Frankfort, February, 1885, No. 645.

SECTION IX. *Famine.*

FRANCE. *Artois.* 1587.

(No. 1919.) I am now able to give the description of this medal.

Obverse. A cavalier praying between Famine and Death. Beneath : 1587. Legend : Mvltā.Svnt.Mala.Impiorvm. (rosette)

Reverse. A cornucopia filled with fruits and flowers. Legend : Qvi.Dno (Domino). Fidit. Bonitate.Eivs.Circvm (rosette) | Dabitvr Copper. 19. 30 mm. In my collection. Unmentioned by Pfeiffer and Ruland.

Provence. 1747.

1985. Relief of the famine in Provence by Étienne Guillaume Bouret. Bronze. 46. 73 mm. Wellenheim, 13,302 ; Helbing, Cat., ix., 1892, No. 843. Unmentioned by P. and R.

GERMANY.—Dr. Rudolph Virchow (1821—), of Berlin.

In addition to No. 401 there are the following :

1986. Obverse. Bust, facing and toward left. Deitenbeck 1890 Inscription.

Reverse. Æsculapius enthroned. Inscription. Silver. 70 mm. Weyl, One Hundred and Twenty-second Cat., 1892, No. 23.

1987. Obverse. Bust, to right. Behind : Ætat : In front : LXX Inscription : Rvdolphvs. Virchow. Pomeranvs. Civis.Berolinensis

Reverse. To left, Mercury nude, with torch in left hand, unveils with his right a statue of Isis, against which there leans a sketch of the Pathological Institute in Berlin. Science, seated, with right hand on book and left holding a skull, is surrounded by medical emblems, a microscope, skulls, sphinx, a jar upon which the word Embolia, etc. Exergue : Omnis Cellvla A Cellvla | * One gold and one silver were struck. Bronze. 95. 180 mm. By Anton Scharff of Vienna. *Illustrirte Zeitung*, November 7th, 1891, p. 488, fig.

Presented to Virchow on his seventieth birthday, October 13th, 1891, by Waldeyer, from his admirers in and out of Germany.

1988. Obverse. Bust, with spectacles, facing and to left ; ts base wrapped by crossed branches of palm and laurel. Below, at right : Oertel Berlin D. Upon lower edge : I. Götz Sc. E. Deitenbeck Fec. Inscription : Professor Dr.—Rud. Virchow

Reverse. Between twigs of a single laurel branch : 1821 | 13. October | 1891. Silver, aluminum, bronze. 45. 70 mm. In my collection.

1989. Obverse. Bust, spectacl'd, to left. Inscription : Rudolph—Virchow | 13. October—1821 1891

Reverse. A laurel wreath, enclosing a shield above, upon which a bear, to left. Within : Gewidmet | Vom | Fortschrittlichen | Verein | Vor Dem Halle- | schen Thor | Zu | Berlin Bronze, gilt. 16. 26 mm. Edge of obverse milled ; of reverse beaded. In my collection. This was also struck upon Virchow's seventieth birthday.

There is said to be still another medal of Virchow, "from Simon and Victor Horsley, from the scientific bodies of Great Britain," but of this I am not yet certain.

Hamburg. Famine of 1713.

1990. Similar to No. 555, save without date. In my collection. Unmentioned by P. and R.

BELGIUM. *Ypres.* 1846-47.

1991. Obverse. Female with mural crown, facing and seated ; in right hand a cornucopia, while left rests on the City Arms, which are supported by a lion to right. At feet, sheaves of grain. In distance, to left, the Market House. Below : MDCCCXLVIII Legend : Fame Pulsa Egenis Succurrit. Exergue : Wiener F.

Reverse. Between tied oak branches : Aux | Magistrats | Prevoyans | La Cite | Reconnaissante | (followed by their names). Silver, bronze. 31. 50 mm. Edges milled. Guioth, Hist. num. de Belgique, p. 168, pl. XXXI., No. 116. Unmentioned by P. and R.

1992. Obverse as that of preceding.

Reverse. Plan of the Hotel de Ville. Inscription : Beffroi | 1^{re} Pierre Posée (etc.). 31. 50 mm. Only three struck. *Ibid.*, p. 276, pl. XLVI., No. 209. Unmentioned by P. and R.

1993. Obverse. The Market House. Below : Les Halles D'Ypres. Exergue : J. J. Dumont Rest. 1849 J. Wiener Fec.

Reverse as that of the last but one. 31. 50 mm. Only three struck. *Ibid.*, p. 277, pl. XL., No. 210. Unmentioned by P. and R.

There are additional medals of famine through inundations.

BELGIUM, *Brussels*, 1850. See under Cholera, No. 2015.

FRANCE.

1994. Obverse. A female and Charity. Secours Apporte Aux Inondes De La Loire 1846.

Reverse. Aux Courageux Devouements (etc.) Bronze. 43. 68 mm. Corsi Cat., No. 4138. Unmentioned by P. and R.

GERMANY. *Landsberg-an-Worthe.*

1995. Inundation. 1888. Silver. 55. 35 mm. Weyl, One Hundred and Eighteenth Cat., January, 1892, No. 214.

ITALY. *Rome.*

1996. Obverse. Head, to left. Inscription : Vittorio Emanuele II Re D'Italia.

Reverse. Inondata Dal Tebro (the Tiber) Roma Geneva (etc.) Bronze. 35. 55 mm. Corsi Cat., No. 3007.

(*To be continued.*)

REGULATIONS AGAINST CHOLERA IN PASSING SUEZ CANAL.

ABSTRACT OF MINUTE AGREED UPON BY THE DELEGATES OF AUSTRIA-HUNGARY, FRANCE, AND GREAT BRITAIN, RESPECTING THE SANITARY CONVENTION AT VENICE, JANUARY 30TH, 1892.

Suspected Ships.—That is, such as have had a case of cholera on board at the moment of starting or during the voyage, but no fresh case within seven days. Such ships shall be treated differently, according as they have or have not a doctor and a disinfecting apparatus (“*étuve*”) on board.

(*a*) Ships having on board a doctor, and a disinfecting apparatus (“*étuve*”) fulfilling the desired requirements, will be allowed to pass through the Canal in quarantine under the conditions stated in the Transit Regulations.

(*b*) Other suspected ships, having neither a doctor nor a disinfecting apparatus (“*étuve*”), will, before being allowed to pass through the Canal in quarantine, be stopped at Moses' Wells during the time necessary for disinfecting the soiled

linen, body linen, and other susceptible articles, and for ascertaining that the ship is in [good] sanitary condition.

In the case of a mail-steamer, or of a packet specially engaged in the carriage of passengers, not having a disinfecting apparatus ("étuve") on board, but carrying a doctor, transit in quarantine will be allowed if the local authority has an assurance, derived from an official certificate, that sanitary measures and disinfection have been properly carried out, either at the place of departure or during the voyage.

In the case of mail-steamers or of packets especially engaged in the carriage of passengers, without a disinfecting apparatus ("étuve"), but carrying a doctor, free pratique may be granted at Suez after the operation of disinfection has been completed, if the last case of cholera occurred more than fourteen days previously, and if the state of the ship is satisfactory.

In the case of ships having had a voyage of less than fourteen days, passengers for Egypt shall disembark at Moses' Wells and be isolated for twenty-four hours, and their soiled linen and the effects they have used shall be disinfected. They will then receive free pratique.

Vessels having had a passage of less than fourteen days wishing to obtain free pratique in Egypt will also be stopped twenty-four hours at Moses' Wells.

In cases where the cholera has occurred exclusively among the crew, disinfection will extend only to the soiled linen of the crew, but it will extend to all the soiled linen of the crew, and to all the parts occupied by the crew.

Infected Ships.—That is to say, those which have cholera on board, or which have had fresh cases of cholera within seven days. They are divided into ships without a doctor and disinfecting apparatus ("étuve"), and ships with a doctor and disinfecting apparatus ("étuve").

(a) Ships without a doctor and a disinfecting apparatus ("étuve") will be detained at Moses' Wells; persons suffering from cholera or choleraic diarrhoea will be disembarked, and isolated in a hospital. Disinfection will be carried out in a thorough manner. The other passengers will be disembarked, and isolated in groups of as few as possible, in order that the whole number may not be affected by a particular group, should cholera occur. Soiled linen, effects that have been

used, the clothing of the crew and of the passengers, will be disinfected as well as the ship.

It is clearly understood that there is no question of discharge of merchandise, but only of disinfecting the infected portion of the ship. The passengers will remain for five days at the establishment at Moses' Wells; in cases where the cholera occurred several days previously, the period of isolation will be shortened. The period in question will vary according to the date of the occurrence of the last case.

Thus, if the last case occurred within seven days, the period of observation shall be forty-eight hours; if within six days, the observation will last three days; if within five days, the observation will last four days; if within less than five days, the observation will last five days.

(b) *Ships with a Doctor and Disinfecting Apparatus* ("Étuve").—Ships with doctors and stoves ("étuves") will be detained at Moses' Wells.

The ship's doctor will declare on oath which persons on board are suffering from cholera or choleraic diarrhœa. These sick persons will be disembarked and isolated.

After the disembarkation of these sick, the soiled linen of the rest of the passengers and of the crew will undergo disinfection on board.

When cholera has occurred among the crew only, the disinfection of the linen shall extend to that of the crew only, and to the linen of the parts occupied by the crew.

The ship's doctor will also indicate on oath the part or compartment of the ship and the section of the hospital in which the patient or patients have been conveyed. He will also declare, on oath, which persons have been in communication with the choleraic sick, after the first appearance of the disease, either by direct contact, or by contact with articles capable of conveying infection.

These persons alone shall be considered as "suspect."

The part or compartment of the ship and the section of the hospital in which the patients have been conveyed will be thoroughly disinfected. By "part of the ship" is understood the cabin of the patient, the adjoining cabins, the passage of the cabins, the deck, and the parts of the deck which the patient or patients may have occupied.

If it is found impossible to disinfect the part or compartment of the ship which has been occupied by persons suffering from cholera and choleraic diarrhœa without disembarking the persons declared to be "suspect," these persons will be placed on another ship specially set apart for this purpose, or disembarked and lodged in the sanitary establishment provided for in Annex I. of the Convention under the title, *Organization of Superintendence and Disinfection at Suez and at Moses' Wells*, without coming in contact with the patients, who will be placed in the hospital.

The duration of this stay on the ship or on land for disinfection shall be as brief as possible, and shall not exceed twenty-four hours.

These suspects shall undergo observation, either on their own ship or on the ship set apart for the purpose ; the period of this observation shall vary according to the following table :

When the last case of cholera occurred in the course of the 7th, 6th, or 5th day before reaching Suez..... ..	}	The observation shall be from 24 to 48 hours.
If it occurred in the course of the 4th day before reaching Suez..... ..	}	The observation shall be from 2 to 3 days.
If it occurred in the course of the 3d day before reaching Suez..... ..	}	The observation shall be from 3 to 4 days.
If it occurred in the course of the 2d day before reaching Suez..... ..	}	The observation shall be from 4 to 5 days.
If it occurred one day before reaching Suez..... ..	}	The observation shall be of 5 days.

The time occupied by disinfecting operations is included in the period of observation.

Passage in quarantine may be granted before the expiry of the periods above indicated if the sanitary authority judges it possible ; it will in every case be granted when the disinfection is completed, if the vessel abandons, in addition to her patients, the persons above defined as "suspect."

A stove ("étuve") placed on a pontoon may come alongside the ship to expedite the disinfecting operations.

Infected ships wishing to obtain free pratique in Egypt are detained for five days at Moses' Wells, reckoning from the last case which occurred on board.

In consequence of the interpretation placed on the provisions of Articles 2 and 3 as originally drafted by the Venice Conference, the undersigned delegates have been obliged to

modify the wording of the following provisions in order to bring the whole into harmony :

I. REGULATION AGAINST CHOLERA, ARTICLE 4.

The different groups of persons admitted to the sanitary station shall be separated from one another according to date of arrival, and the sanitary condition of each group.

Persons having cholera or choleraic diarrhœa are strictly separated from other persons, and receive the medical treatment which their condition requires.

Cholera convalescents, however many days they may have spent at the sanitary station, receive free pratique only on the declaration of the doctor of the said station, to the effect that there is no danger in granting it.

The bodies of those who have died of cholera shall be buried in the cemetery attached to the sanitary station, or, in default of a cemetery, in an isolated spot, with all requisite precautions. The depth of the grave must be two metres.

The apartments tenanted by cholera patients in the sanitary stations shall, on being vacated, be disinfected with the greatest care.

II. Annex I. to the Convention under the following heading :

ORGANIZATION OF SUPERINTENDENCE AND OF DISINFECTION AT SUEZ AND AT MOSES' WELLS.

The disinfecting and isolating station at Moses' Wells shall contain :

1. Three disinfecting stoves ("étuves"), one of which shall be on a pontoon.

2. An isolating hospital with twelve beds for persons suffering from cholera or from choleraic diarrhœa. This hospital shall be so arranged that the patients, male and female, are isolated from one another.

3. Buildings, hospital tents, or ordinary tents, for persons who are landed, not included in the foregoing paragraph.

4. A sufficient number of baths and shower-baths ("douches-lavages").

5. Buildings necessary for the common services, the medical staff, the guards, etc., a store, and a laundry.

6. A reservoir of water.

7. The various buildings shall be so arranged that no contact be possible between invalids, infected or suspected objects, and other persons.

III. Annex III. to the Convention, under the following heading :

COMPOSITION, POWERS, AND WORKING OF THE MARITIME,
SANITARY, AND QUARANTINE BOARD OF EGYPT.

(Alterations in the Regulations for maritime, sanitary, and quarantine police.)

Article 32 (ex 37).

If, during the isolation of persons landed, a fresh doubtful or decided case of cholera occurs among the isolated persons, the period of isolation recommences for the group of persons who were in contact with the person attacked.

IV. Annex V. to the Convention, under the following heading :

PRECAUTIONARY MEASURES TO BE TAKEN ON BOARD SHIPS
ON DEPARTURE, DURING THE PASSAGE, AND ON ARRIVAL
AT SUEZ.

III. Measures to be taken on arrival at Suez :

1. All ships shall undergo a medical visit before entering the Suez Canal.

2. This visit shall be made by the sanitary authority at Suez.

3. If the ship is infected, the persons suffering from cholera, or classed as doubtful, shall be disembarked and isolated in a special building near Suez. Persons having had choleraic symptoms, notably choleraic diarrhœa, shall be classed as doubtful.

4. All contaminated objects and the following objects shall be disinfected before the entry of the ship into the Suez Canal—namely, clothes, bed-clothes, mattresses, carpets, and other objects which have been in contact with the patient, the clothes of those who have tended him, the objects in the patient's cabin and in the adjacent cabins, the passage to those cabins, the deck, or the parts of the deck which the patient may have occupied.

† In regard to the manner of communicating to the other Governments which took part in the Venice Conference the new declaratory drafting of Articles 2 and 3 of the "Regulations against Cholera" and the modifications of detail made in the wording of the Annexes of the Convention, which are reproduced above, the undersigned Delegates have agreed upon the following :

They are of opinion that the communication of the above-mentioned modifications to the said Powers should be intrusted to the care of the Austro-Hungarian Government, begging them, should they approve, to substitute them for the former texts of the Annexes in the ratifications of the Sanitary Convention, signed at Venice January 30th, 1892.

It is understood that the communication to be made by the Cabinet of Vienna shall be supported, as regards these Governments, by a note from the Governments of France and of Great Britain.

The undersigned Delegates call attention to the fact that the term fixed by the Convention for the exchange of the ratifications expires on August 1st next.

Having observed, moreover, that in Annex IV. of the diplomatic document containing the said Convention the "Regulations concerning the Formation of a Corps of Sanitary Guards" have been omitted, as the Secretaries of the Conference informed the Delegates on February 25th, 1892, they express the opinion that the Austro-Hungarian Government should likewise transmit to the Powers the complete text of the Convention and of the Annexes, printing in distinguishing type the changes of form resulting from the present Minute.

In faith whereof the undersigned Delegates have drawn up the present Minute in three originals at Paris, June 9th, 1892.

(Signed) E. CONSTANTINE H. PHIPPS.

R. THORNE THORNE.

KUEFSTEIN.

CAMILLE BARRÈRE.

D. BROUARDEL.

A. PROUST.

These regulations, as will be seen, deal with nearly all the medical considerations involved in the question of the passage

through the Suez Canal of vessels on which cholera has occurred ; and since there is reason to believe that they have been already accepted by a majority of the Governments represented at Venice, they may probably be taken as embodying the rules which will come into operation and be carried out under the auspices either of the Egyptian Government or of a newly constituted International Board appointed for the special purpose.—*From The Practitioner, December, 1892.*

NATIONAL QUARANTINE SERVICE.

IN the Senate of the United States, March 24th, 1892, Mr. Harris introduced the following bill, which was read twice and referred to the Committee on Epidemic Diseases.*

December 22d, 1892, reported by Mr. Harris with amendments, viz.: Omit the parts struck through and insert the parts printed in *italics*.

A BILL GRANTING ADDITIONAL QUARANTINE POWERS AND IMPOSING ADDITIONAL DUTIES UPON THE MARINE HOSPITAL SERVICE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or *other* vessel from any foreign port *or place* to enter any port of the United States except in accordance with the provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act ; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding one thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States District Attorney for such district shall appear on behalf of the United States ; and all such proceedings shall be conducted in accordance with

* SANITARIAN, June, 1892.

the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 2. That all vessels at foreign ports clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Marine Hospital Service and approved by the Secretary of the Treasury, setting forth the sanitary history of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers and crew; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied the matters and things therein stated are true; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than one thousand dollars, the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States District Attorney for such district shall appear on behalf of the United States; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 3. That the Marine Hospital Service shall co-operate with and, so far as it lawfully may, aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations prepared by the Marine Hospital Service and approved by the Secretary of the

Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State from another ; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Marine Hospital Service, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State from another, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Marine Hospital Service, are not sufficient to prevent the introduction of such diseases into the United States, or into one State from another, the Marine Hospital Service shall report the facts to the Secretary of the Treasury, who shall, if in his judgment it is necessary and proper, order said Marine Hospital Service to make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State from another, *and when said rules and regulations have been* so made and approved by the Secretary, *they* shall be promulgated by the Marine Hospital Service and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them ; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President may detail an officer or appoint a proper person for that purpose. The Marine Hospital Service shall make such rules and regulations as are authorized by the laws of the United States and necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place at which contagious or infectious disease exists to any port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers, and crew ; and when said rules and regulations have been approved by the Secretary of the Treasury they shall be published and communicated to and enforced by the consular officers of the United States. None of the penalties herein imposed shall attach to any vessel or owner or officer thereof until a copy of this act, with the rules

and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days, in the port from which said vessel sailed ; and the certificate of such consul or consular officer over his official signature shall be competent evidence of such posting in any court of the United States.

SEC. 4. That it shall be the duty of the Marine Hospital Service, under the direction of the Secretary of the Treasury, to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act, and to obtain information of the sanitary condition of foreign ports and places from which contagious and infectious diseases are or may be imported into the United States, and to this end the consular officer of the United States at such ports and places as shall be designated by the Marine Hospital Service shall make to said Marine Hospital Service weekly reports of the sanitary condition of the ports and places at which they are respectively stationed, according to such forms as said Marine Hospital Service may, with the approval of the Secretary of the Treasury, prescribe ; and the Marine Hospital Service shall also obtain, through all sources accessible, including State and municipal sanitary authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to collectors of customs and to State and municipal health officers and other sanitarians weekly abstracts of the consular sanitary reports and other pertinent information received by said service, and shall also, as far as it may be able, by means of the voluntary co-operation of State and municipal authorities, of public associations, and private persons, procure information relating to the climatic and other conditions affecting the public health, and shall make an annual report of its operation to the Secretary of the Treasury, who shall transmit the same to Congress, with such recommendations as he may deem important to the public interests.

SEC. 5. That the Marine Hospital Service shall, with the approval of the Secretary of the Treasury, from time to time issue to the consular officers of the United States and to the medical officers serving at any foreign port, and otherwise make publicly known, the rules and regulations made by it

and approved by the Secretary of the Treasury, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage ; and all such other rules and regulations as shall be observed in the inspection of the same on the arrival thereof at any quarantine station at the port of destination, and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow-fever, or other contagious or infectious diseases ; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and its master, in respect to the same and to its cargo, passengers, and crew ; and the master of every such vessel shall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry ; and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

SEC. 6. *That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Marine Hospital Service may remand said vessel, at its own expense, to the nearest national or other quarantine station where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo ; and after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within*

the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Marine Hospital Service may direct vessels bound for said ports to undergo quarantine at said State or local station.

SEC. 7. *That whenever it shall be shown to the satisfaction of the President that by reason of the existence of cholera or yellow-fever in a foreign country there is serious danger of the introduction of the same into the United States, and that notwithstanding the quarantine defence this danger is so increased by immigration that a suspension of the same is demanded in the interest of the public health, the President shall have power to suspend immigration from such countries or places and for such period of time as he may deem necessary.*

SEC. 8. That the act entitled "An act to prevent the introduction of infectious or contagious diseases into the United States, and to establish a national board of health," approved March third, eighteen hundred and seventy-nine, be, and the same is hereby, repealed.

S. 2707—2.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076: T. S. Scales, M.D., Health Officer, reports for the month of October a total mortality of 82, of which number 24 were under five years of age, and 45 were colored.

The annual death-rate was 31.76 per 1000. There were 20 deaths from zymotic diseases, and 7 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento. Twelfth Biennial Report for the fiscal years from June 30th, 1890, to June 30th, 1892. A pamphlet of two hundred and thirty pages, comprising abstracts of the several meetings of

the Board during the interval covered ; special investigation of the danger of small-pox to the State from its prevalence in Mexico, 1890 ; reports on prisons, asylums, and schools, etc., and general summary of the monthly reports—of which abstracts have regularly been given from month to month in these pages.

The total number of deaths in the State, as summed up for the year ending June 30th, 1891, was 12,880—estimating the population at 1,250,000—the death-rate was 12.24. For the same length of time—June 30th, 1891, to June 30th, 1892—the number was 15,847, and the death-rate 12.67.

Mortality reports from 111 cities, towns, villages, and sanitary districts, having an aggregate population of 808,603, show 959 deaths from all causes during October, 1892. This corresponds to a death-rate of 1.18 per 1000, or 14.16 per annum.

There were 117 deaths due to consumption, 46 to pneumonia, 25 to bronchitis, 2 to congestion of the lungs, 29 to diarrhoea and dysentery, 38 to cholera infantum, 67 to other diseases of the stomach and bowels, 36 to diphtheria and croup, 18 to scarlatina, 3 to whooping-cough, 41 to typhoid-fever, 6 to malarial fevers, 1 to cerebro-spinal-fever, 2 to erysipelas, 35 to cancer, 73 to diseases of the heart, 8 to alcoholism, and 411 to other causes.

San Francisco, 330,000 : J. W. Keeney, M.D., Health Officer, reports : The total number of deaths during the month of October was 452—127 under five years of age, and 24 among the Chinese. The annual death-rate per 1000 was 16.32. There were 78 deaths from zymotic diseases, and 54 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, reports in the *Monthly Bulletin* :

The mortality report for October has been received from 168 towns in the State.

There were 1116 deaths reported during the month. This was 52 more than in September ; it was 12 less than in October, 1891, and 26 more than the average number of deaths in October for the five years preceding the present.

There were 268 deaths under five years of age. The death-rate was 17.3 for the large towns and 16.5 for the small towns,

and 17.0 for the whole State. The deaths from zymotic diseases were 241, being 21.5 per cent of the total mortality against 29.7 per cent in September. The deaths from consumption numbered 139.

New Haven, 95,000 : F. W. Wright, M.D., reports for the month of October 148 deaths—43 under five years of age—representing an annual death-rate of 18.4 per 1000. Forty-one deaths were from zymotic diseases, and 19 from consumption.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for four weeks ending November 26th, a mortality of 384, of which number 165 were of colored people, and 114 were under five years of age. The annual death-rate was 21.7 per 1000. There were 73 deaths from zymotic diseases, and 45 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Pensacola, 15,000 : R. W. Hargis, M.D., President, reports for the month of October 20 deaths, of which number 7 were under the age of five years. The annual death-rate was 16.0 per 1000. There were two deaths from zymotic diseases, and one only from consumption.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago.—Report for the year 1891 : Estimated population, 1,250,000. Total number of deaths from all causes, 24,754. Deaths from zymotic diseases, 8000, of which there were from diarrhoeal diseases, 2895 ; typhoid-fever, 1997 ; diphtheria and croup, 1358 ; scarlet-fever, 499 ; cerebro-spinal-fever, 301 ; measles, 265 ; whooping-cough, 194 ; malarial-fever, 143. Deaths from phthisis pulmonalis, 2120 ; other tubercular diseases, 202 ; pneumonia, 2898 ; bronchitis, 1495 ; influenza, 316. Death-rate, 22.20.

The Commissioner of Health remarks that “during the winter foreign journals commenced an attack on Chicago and the contamination of its water-supply, and highly colored and

much distorted statements were printed, apparently for the purpose of belittling the greatness of Chicago, and injuring the attendance during the World's Fair. Repeated tests, made by chemists, failed to reveal any unusual amount of contamination, and the water was pronounced as good as any water ever supplied to the city. With the completion of the new four-mile tunnel, all possibility of contamination of water will be removed, and very few cities of the first magnitude can boast of as perfect and pure a water-supply as Chicago."

During the month of October there were reported 1822 deaths, in an estimated population of 1,400,000.

Of this number 737 were under five years of age.

The annual death-rate represented was 15.61 per 1000. There were 450 deaths from zymotic diseases, of which 118 were diphtheria, and there were 160 deaths due to consumption.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Evansville, 50,756: L. Worsham, M.D., reports for October 73 deaths, of which number 31 were under five years of age.

Annual death-rate 17.13 per 1000.

There were 20 deaths from zymotic diseases, and 13 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for October as follows:

Burlington, 25,000: Total deaths, 17. Annual death-rate per 1000, 7.86.

Council Bluffs, 35,000: Total deaths, 24. Annual death-rate per 1000, 8.52.

Des Moines, 70,000: Total deaths, 56. Annual death-rate per 1000, 8.4.

Dubuque, 35,000: Total deaths, 38. Annual death-rate per 1000, 12.96.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254 000—184,500 white, 69,500 colored. There were reported for four weeks ending November 26th, 510 deaths, of which number 189 were among the colored people, and 145 of children under five years of age. There were 78 deaths due to zymotic diseases, and 64 to consumption. The annual death-rate was 26.14 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for October that there were 752 deaths, a decrease of 76, compared with the corresponding month of October, 1891. Of these 582 were whites and 170 colored ; a death-rate of 18.13 per 1000 for the former and 28.73 per 1000 for the latter. The death-rate per 1000 for the whole population was 19.83. Fifty died from infectious diseases, 105 from consumption, 55 from pneumonia, 11 from cholera infantum, 10 from enterocolitis, 18 from diarrhœa, 9 from dysentery, 36 from diphtheria, and 29 from typhoid-fever. Two hundred and eighty-seven, or 36.83 per cent of the total deaths were in children under five years of age.

During the month 204 cases of infectious diseases were reported, an increase of 101 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 803 deaths reported in October, of which number 237 were under five years of age. The annual death-rate per 1000 was 20.51. There were 133 deaths from zymotic diseases, and 110 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of November, 1892, compared with the preceding month, the reports indicate that whooping-cough, membranous croup, inflammation of brain, influenza, puer-

peral-fever, pleuritis, typho-malarial-fever, and pneumonia increased, and that cholera infantum, cholera morbus, diarrhoea, dysentery, measles, intermittent-fever, and inflammation of bowels decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was northwest (instead of southwest), the velocity was greater, the temperature was much lower, the rainfall at Lansing was 1.58 inches more, the absolute humidity was less, the relative humidity was more, the day and the night ozone were much less, and the height of ground above the water in the well at Lansing was four inches more.

Compared with the average for the month of November in the six years 1886-91, small-pox, cholera infantum, inflammation of brain, measles, cerebro-spinal meningitis, intermittent-fever, erysipelas, membranous croup, inflammation of bowels, and puerperal fever were less prevalent in November, 1892.

For the month of November, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was northwest (instead of southwest), the velocity was less, the temperature was lower, the rainfall at Lansing was .17 of an inch less, the absolute and the relative humidity were about the same, the day and the night ozone were much less, and the height of ground above the water in the well at Lansing was four inches more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of November, 1892, at ninety-three places; scarlet-fever, ninety-five; typhoid-fever, ninety-four, and measles at fifteen places.

Reports from all sources show diphtheria reported at thirty places more, scarlet-fever at thirty-nine places more, typhoid-fever at ten places less, and measles at six places more in the month of November, 1892, than in the preceding month.

Detroit, 230,000 : S. P. Duffield, M.D., Health Officer, reports for the month of October 356 deaths, of which number 87 were under five years of age. The annual death-rate was 18.22 per 1000. The deaths from zymotic diseases numbered 100, and from consumption, 25.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing. *St. Paul*, 150,000 : H. F. Hoyt, M.D., Commissioner of

Health, reports for the month of October 146 deaths, of which number 66 were under five years of age. Annual death-rate per 1000, 11.68. Zymotic diseases caused 50 deaths, and consumption 6.

Minneapolis, 209,000 : E. S. Kelley, M.D., Commissioner, reports for the month of October 173 deaths, of which 56 were under five years of age. The annual death-rate was 8.27. From zymotic diseases there were 38 deaths, and from consumption, 17.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent, reports that there were 132 deaths during the month of October, of which number 52 were under five years of age. Annual death-rate per 1000, 11.8. Zymotic diseases caused 21 deaths, and consumption, 12.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 292,574 : C. J. Rooney, Jr., Clerk, reports for the month of October a mortality of 475, of which number 199 were under five years of age. The annual death-rate per 1000 was 23.1. There were 100 deaths from zymotic diseases, and 47 from consumption.

Paterson, 85,386 : J. L. Leal, M.D., Reports for October 120 deaths, of which number 40 were under five years of age. The annual death-rate was 16.8. There were 20 deaths from zymotic diseases, and 16 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows :

The average number of deaths daily during October decreased from 319 in September to 232, there having been 518 fewer deaths during the month. Of the 9092 deaths, 7459 are

reported from 144 cities, villages, and large towns, which represents an annual death-rate of 19 per 1000 population. In the six large cities, having an aggregate population of 3,371,600, the death-rate was 19.5. In the rural portion of the State, in a population of 1,170,700, the death-rate was 16.25. . . . The infant mortality was 32.0 per cent, which is about that of the average for October, against 38.8 in September. Contagious and infectious diseases caused 17.74 per cent of the deaths, the average for the past seven years being 19.24; in September it was 23.59. This diminution is more than accounted for by the large decrease in deaths from diarrhœal diseases; there being an increase in deaths from diphtheria from 372 to 550. This increase is, however, always found to occur in October, and is not above the average; its prevalence has been reported from numerous localities; 3.97 per cent of the deaths in rural localities were from this cause, and in six large cities, 6.07. Scarlet-fever shows a slight increase, chiefly in the cities, but 6 deaths having occurred in the rural districts. From typhoid-fever there were fewer deaths than in September, and fewer than the average; of 1587 deaths in rural localities, 3.28 per cent were from typhoid-fever, while less than 1.5 of the deaths in large cities were from this cause. There were 27 deaths from small-pox, all of which occurred in the maritime district; it appeared in Albany, November 1st, but is limited to one family. A number of deaths have been reported as due to epidemic influenza, but no increase is shown in the deaths from local diseases as due to it.

New York, 1,801,739: Total deaths, 3032—1153 under five years. Death-rate, 19.80. Zymotic diseases per 1000 deaths from all causes 159.28. Deaths from consumption, 360.

Annual Report for 1891: Estimated population, 1,680,796. Total number of deaths, 43,659—an increase of 3556 over the previous year. This increase is attributed chiefly to grippe, which culminated in an epidemic early in the spring. The number of deaths from this cause reported in any one week of the epidemic of 1891 was less than that of 1890, but the slower course of the disease resulted in a greater mortality. The deaths attributed to influenza alone, or to bronchitis or pneumonia as its sequelæ, were 854 in 1891, against 314 in

1890, while the total number of deaths during the months when the disease was most destructive was only 4745 in January, 1890, against 5048 in April, 1891. But there appears to be a remarkable difference in the two years, in the effect of the influenza on the mortality from phthisis. In 1890 the number of deaths from this cause during the prevalence of influenza was considerably above the average, there having occurred 797 deaths in January, against an average of only 457 for the same month during a period of ten years; but in 1891 the increase was very slight, the total for the year being less than for any year since 1880.

The total mortality from phthisis during the year 1891 was 5160—11.8 per cent of the mortality from all causes.

The other prevailing causes and the number of deaths for the year were, from pneumonia, 5818; diarrhœal diseases, 3587; disease of the digestive organs, 2741; heart disease, 2285; Bright's disease, 2116; bronchitis, 1836; diphtheria and croup, 1970; scarlet-fever, 1220; cancer, 902; meningitis, 932; measles, 663; tubercular meningitis, 614; typhoid-fever, 384; whooping-cough, 352; chronic bronchitis, 447; acute nephritis, 385. Death-rate, 25.97—.39 greater than 1890.

Brooklyn, 957,163: Total deaths, 1544—651 under five years. Death-rate, 19.00. Zymotic diseases per 1000 deaths from all causes, 170.33. Deaths from consumption, 175.

Albany, 97,120: Total deaths, 187—51 under five years. Death-rate, 23.00. Zymotic diseases per 1000 deaths from all causes, 160.44. From consumption, 28.

Syracuse, 91,944: Total deaths, 112—22 under five years. Death-rate, 14.62. Zymotic diseases per 1000 deaths from all causes, 205.35. From consumption, 14.

Buffalo, 278,796: Total deaths, 464—205 under five years. Death-rate, 20.13. Zymotic diseases per 1000 deaths from all causes, 243.53. From consumption, 42.

Rochester, 144,834: Total deaths, 211—64 under five years. Death-rate, 17.48. Zymotic diseases per 1000 deaths from all causes, 223.80. From consumption, 15.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of October 169 deaths in twenty towns aggregating 115,966 inhabitants. Of this number 60 were under five years of age. The annual death-rate was 17.5 per 1000.

Typhoid-fever caused 12 deaths; diarrhoeal diseases, 15; heart diseases, 11; brain diseases, 7; malarial-fever, 9; and consumption, 26.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Cincinnati. 300,000: J. W. Prendergast, M.D., Health Officer, reports for the month of October 455 deaths, of which number 132 were under five years of age. The annual death-rate was 17.9 per 1000. There were 76 deaths from zymotic diseases, and 43 from consumption.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia. Annual Report of the Board of Health for the year 1891 is a volume of nearly eight hundred pages. Estimated population, 1,069,264. Total number of deaths from all causes, 23,367. The prevailing causes of death and the number, respectively, were, from consumption of the lungs, 2624; inflammation of the lungs, 2111; bronchitis, 539; influenza, 304. From cholera infantum, 1211; typhoid-fever, 684; diphtheria and croup, 1368; scarlet-fever, 341; heart diseases, 1325. Death-rate, 21.85.

Considerable space is taken up with regard to quarantine—the question of its removal and its maintenance by the State or nation, but without any definite conclusion. Altogether the report is remarkable for diffuseness, making it difficult to deduce any conclusions of practical benefit.

Philadelphia, 1,092,168: M. Veale, Health Officer, reports:

In the three weeks ending November 19th, 1892, there were 1163 deaths, of which number 376 were under five years of age. Annual death-rate, 18.4 per 1000. Deaths from consumption numbered 122. Of 207 deaths from zymotic diseases, 139 were from diphtheria.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the four weeks ending November 26th, 1892, there were 353 death, of which 156 were under five years of age. Annual death-rate, 18.50 per 1000. Zymotic diseases caused 80 deaths, and consumption, 26.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of October :

The number of deaths recorded in the different towns and cities, from which returns have been received, was 417, in an estimated population of 308,870. The annual death-rate upon the estimate given is 16.2 in every 1000 of the population.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of October were : Malarial-fever, typhoid-fever, consumption, diphtheria, scarlet-fever, whooping-cough, dysentery, pneumonia, and tonsilitis.

Typhoid-fever was reported in the counties of Chester, Davidson, Decatur, Fentress, Franklin, Hamilton, Hickman, Houston, Knox, Maury, Montgomery, Robertson, Rutherford, Shelby, Sullivan, and Wayne. Consumption in Davidson, Hardeman, Hamilton, Knox, Maury, Montgomery, Rutherford, and Shelby. Diphtheria in Chester, Davidson, Decatur, Franklin, Knox, and Shelby. Scarlet-fever in Davidson, Hamilton, Knox, Montgomery, Robertson, and Shelby. Whooping-cough in Davidson, Decatur, Hancock, and Knox. Cerebro-spinal meningitis, Dickson. Varicella in Maury.

Chattanooga, 27,000 white and 13,000 colored : Total deaths in October, 28—14 of which were colored, and 9 under five years of age. Annual death-rates, 6.22 for the white population, and 12.92 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored : Total deaths in October, 53—13 of which were colored, and 16 under five years of age. Annual death-rates, 15.34 white, and 17.31 colored, per 1000.

Memphis, 33,800 white and 27,700 colored : Total deaths in October, 118—52 of which were colored, and 21 under five years of age. Annual death-rates, 22.52 white, and 23.02 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths in October, 114—58 of which were colored, and 40 under five years of age. Annual death-rates, 12.30 white, and 20.98 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 246,000 : U. O. B. Wingate, M.D., Health Officer, reports for the month of October 345 deaths, of which number 176 were under five years of age. Annual death-rate, 16.69 per 1000.


From zymotic diseases there were 150 deaths, and from consumption, 19.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of September, 1892, shows that there was a total mortality of 1192, of which number 670 were of children under five years of age. From infectious and contagious diseases there were 107 deaths ; from pneumonia, 141 ; from meningitis, 69 ; from gastro-enteritis, 40 ; still-births, 102.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

NATIONAL HEALTH SERVICE.

THE PROPOSED GRANTING ADDITIONAL QUARANTINE POWERS TO THE MARINE HOSPITAL SERVICE, as provided for in the bill printed on other pages of this number, appears, for the present, to anticipate and dispose of the more elaborate national health service, contemplated by the recent action of the American Public Health Association, and also the Department of Public Health urged by the Committee of the American Medical Association.

Senator Harris, the author of the bill before us, has so long been chairman of the Senate Committee on Epidemic Diseases, and so constant in his effort to establish a national board of health comprehending all that is provided for in this bill and a good deal more besides, that the introduction of this measure can scarcely have any other significance, with regard to his efforts, than that he has virtually despaired of being able to accomplish all that he would, and that he has finally yielded to the urgency of this partial service, as the most that can now be accomplished. Assuming that it will be passed by Congress—though we trust not without some important amendments—the sanitarians of the country, and the port health officers in particular, would certainly be more reconciled to it and far more likely to give it their co-operative support under the present Surgeon-General of the Marine Hospital Service, than would have been possible for them under his predecessor, who did more than any one else to cripple and finally destroy the whilom national board of health, which this bill purports to supplant.

It was under the direction of the National Board of Health, in 1879, that refuge stations for the care of the sick and the cleansing of infected vessels, offshore, on the Gulf Coast of Mississippi, Florida, and Georgia, were provided as aids to the quarantine service of the States concerned, against the introduction of yellow-fever at several small seaports along

those coasts, where there were no quarantine measures except detention.

On the success of Supervising Surgeon-General Hamilton in overcoming the National Board of Health, he proceeded to establish other refuge stations, ostensibly for the same purpose, always characterizing them, however, as national quarantines. Meanwhile, he secured the passage of several insidious laws encroaching upon the rights of the States in this regard. He reached the climax of his effort in September last by his attempt to supersede the Health Officer at the Port of New York.

It is the misfortune of Surgeon-General Wyman, his successor, that he seems to have accepted his predecessor's interpretation of quarantine law, or he would not have allowed himself to become the means of such an adventure.

The "President's Proclamation" of September 1st, 1892, is well known to have been devised by Surgeon-General Wyman of the Marine Hospital Service. That it was inconsistent with accepted knowledge in relation to the incubative period of cholera, dangerous to the people detained on board infected ships, unnecessarily obstructive to commerce, and, indeed, an utter failure in all its purposes, as we have before pointed out, is now common knowledge.

But it is remarkable that the friends of the Surgeon-General (*New York Medical Journal*, December, 1892), who know that he devised the proclamation, should, on becoming aware of the displeasure of the Transatlantic steamship companies with Surgeon-General Wyman's administration of the national quarantine, and that they are taking steps to displace him on account of the unnecessary detention of steamships, should undertake to defend his action by the statement that he "simply acted in accordance with the President's proclamation, and there could be no better commendation of his administration than his condemnation by the various agents of foreign steamship companies, who are generally far more solicitous as to the interests of their owners than as to the welfare of the people of this country."

Such wrongdoing by the steamship companies is no justification for the wrongdoing by the would-be director of a national quarantine service.

Surgeon-General Wyman has and is eminently worthy of the respect of sanitarians, but besides the indirectness of the methods undertaken by him at the port of New York last summer, this bill has, in some respects, elements of discord similar to those comprised in the law that created the national board. In it, the incoherent elements were the officers detailed from the Army, Navy, and Marine Hospital Service—who never agreed. In this: explicitly directed co-operation of the Marine Hospital Service with State authorities, but with power to supersede them, is of the same nature.

SEC. 3: "The Marine Hospital Service shall co-operate with, and so far as it lawfully may, aid State and municipal boards of health," etc. :—*not* Health Officers of the Ports—the officers who more than all others are concerned in this service, and who are commonly under independent and different regulations from State and municipal boards. Municipal, in other places should also read, or should have added, and port health officers. But a still more objectionable substitution for the Health Officer of the Port occurs in Sec. 5: "The master of every such vessel shall produce and deliver to the collector of customs at said port of entry . . . the said bills of health required to be obtained at the port of departure," etc. —making the Collector of Customs the judge of the sufficiency of the bill of health instead of the health officer!

SEC. 6: "Any port not provided with proper facilities" invites conflict, however efficiently equipped it may be in the judgment of the State authorities, for it empowers the Marine Hospital Service to take exception and to supersede—as in the manner attempted at the port of New York last summer, with great detriment to commerce—instead of aid; and, if to be followed on the lines of "Camp Low," at Sandy Hook, ultimate detriment, instead of benefit to the public health.

In like manner the extraordinary powers conferred on the Marine Hospital Service to regulate sanitary service at foreign ports of departure, independent of the health authorities at such ports, invites conflict with them, not likely to promote sanitation, but very sure to provoke conflict. Indeed, it seems not to have occurred to the senator, in the formulation of these extraordinary restrictions on ship sanitation at foreign ports, that their practice is wholly ignored at home—that no

sanitary surveillance is exercised on ships clearing from our own ports.

Moreover, Senator Harris, of *Tennessee*, certainly has a lively recollection of the effects of, and of our continued greater liability to, yellow-fever epidemics in this country than to cholera, notwithstanding the menacing attitude of the latter disease at the present time. Indeed, it may be safely said that, so long as public attention continues to be so exclusively confined to ports of arrival in this country—without regard to ship sanitation at our own ports of departure—such quarantine restrictions as those proposed to be imposed by the bill before us are likely to greatly embarrass commerce and to accomplish little for the prevention of epidemics. And, in so far as this bill, if it becomes a law, contemplates national health service, in co-operation with State sanitary authorities *with power to supersede them*, and, moreover, to ignore sanitary authorities at ports of departure abroad, we believe it to be impracticable in its sanitary aspects and unnecessarily obstructive to commerce.

LITERARY NOTICES AND NOTES.

A MANUAL OF MEDICAL JURISPRUDENCE. By Alfred Swain Taylor, M.D., F.R.S. Revised and edited by Thomas Stevenson, M.D., London. Eleventh American, edited, with citations and additions, from the twelfth English edition, by Clark Bell, Esq., President of the American International Medico-Legal Congress of 1893. 787 pages, 56 illustrations. Price, cloth, \$4.50; sheep, \$5.50. Lea Brothers & Co., Philadelphia, 1892.

This manual has been so long recognized as a standard authority on the subject of which it treats, that the chief necessity for calling attention to it consists in the progress of medico-legal knowledge since the last previous edition. In the successive revisions through which it has passed, it has become more and more the condensation of all that is useful, apart from useless literature on obsolete opinions with no scientific basis, insomuch that it may be justly regarded as the sum of medico-legal knowledge at the present time.

Hitherto, from the time of its publication, under the title

of "Elements of Medical Jurisprudence," London, 1836, by Alfred Swayn Taylor, M.D. (who, by it, when he was only thirty years of age, became distinguished for the clearness with which he explained some of the most difficult questions of medico-legal science), to the tenth London edition, 1879, by the same author, subsequent London editions and the immediately preceding tenth American edition, 1883, have all been under the revision of distinguished medical authorities—Griffiths, Hartshorne, Reese, Penrose, and Stevenson. Hence it may be justly inferred that the medical side of the subject has been very thoroughly elucidated.

Finally, this, the eleventh American edition, has had the advantage of the critical supervision and knowledge of an accomplished member of the bar, who has for many years made medico-legal science a special study. He has added much new matter, besides revising and amending some portions, bringing the whole subject up to the comprehensive needs of the present time.

The additions bearing upon medico-legal questions are illustrated by nearly seven hundred citations of cases and authorities, of practical utility to counsel in preparing briefs, and to physicians who would make themselves familiar with the scope and value of expert testimony.

PUBLIC HEALTH PROBLEMS. By John F. J. Sykes, B.Sc. (Public Health), M.B. (Edinburgh), Medical Officer of Health for St. Pancras, London, and Honorary Secretary of the Incorporated Society of Medical Officers of Health. Illustrated. Price, 3s. 6d. London: Walter Scott, Ltd., 24 Warwick Lane, Paternoster Row.

This work is remarkable for such a mastery of the principles of preventive medicine as to render them alike adaptable to the needs of the physician and the practical sanitarian; and, moreover, entertaining and profitable to all who would cultivate the best means of promoting health.

It opens with a brief introductory chapter, defining the conditions of health generally. That which follows is divided into four parts. Part I.: Internal and external influences upon health—heredity, physical influences, chemical media, and biological agents. Part II.: Communicable diseases—

causation, parasitism, dissemination, and modifications. Part III.: Isolation, disinfection and its effects, inoculation and vaccination, protection of animals and animal food. Part IV.: The Urban Dwelling—urban conditions, the dwelling-room, the dwelling-house, classes of dwellings, retrospective conclusion. These subjects, severally, comprise the gist of the most advanced sanitary knowledge, wholly divested of the redundancy common to larger works, but sufficiently full to render the work eminently practical.

NOTES ON THE NEWER REMEDIES, THEIR THERAPEUTIC APPLICATIONS AND MODES OF ADMINISTRATION. By David Cerna, M.D., Ph.D., Demonstrator of Physiology in the Medical Department of the University of Texas, Galveston; formerly Assistant in Physiology, Demonstrator of, and Lecturer on Experimental Therapeutics in the University of Pennsylvania, etc. Pp. 185. Price, \$1.25. Philadelphia: W. B. Saunders.

This is a timely and needful book on a large number of new remedies, but few of which have as yet found their place in standard works on therapeutics, and for the properties of which physicians are in a large degree dependent upon the manufacturers. Special attention is given to the therapeutical effects and to the modes of administration of the newer remedies, and "whenever it is possible, points are given in regard to the origin, physical properties, and solubility of the medicaments considered;" information which physicians, who would avail themselves of the use of the newer remedies, cannot afford to do without.

TIPS TO INVENTORS: TELLING WHAT INVENTIONS ARE NEEDED AND HOW TO PERFECT AND DEVELOP NEW IDEAS IN ANY LINES. By Robert Grimshaw, Ph.D., M.E., author of "Steam-Engine Catechism," "Pump Catechism," "Boiler Catechism," and numerous other practical works. 12mo, pp. 85. Price, \$1. Practical Publishing Co., 21 Park Row, New York.

"With the object of testing the value of technical periodicals in selling books, and of giving their publishers a special

inducement to take orders for them, 'Tips to Inventors' is not offered to the book trade."

This is an elegantly gotten up little volume, beginning with electricity and ending with selling patents, comprising more than a hundred topics, every one of which is an introduction to a subject of inquiry and possible improvement. Throughout, the reader is impressed with the fact that the already successful machine or process in the use of any device is no reason why it cannot be improved upon, or a better one devised by a thorough knowledge of its defects—for none are perfect.

DR. NICHOLAS SENN, of Chicago, is now preparing a "Syllabus of Lectures on the Practice of Surgery," arranged in conformity with the "American Text-Book of Surgery," which will be a valuable aid to all who have this great book.

THE RAVAGES OF CHOLERA.—The discovery of a method that would protect an individual from cholera would be of great usefulness. For in India, the home of that disease, the average annual mortality therefrom in the cities is 3.32, and in the country 1.52 per 1000 living. The army statistics show that 2.49 per cent of the European soldiers are admitted to the hospital for cholera, while only 0.95 per cent of the native soldiers are admitted for the disease; but the mortality, 33.69 per cent for the former, 35.5 per cent for the latter, is almost equal. In the various epidemic manifestations of cholera in various parts of the world the mortality has often exceeded 50 per cent of those attacked. In 1884 and 1885 cholera was epidemic in Southern Europe, and in Spain in the latter year the official report states that there were almost one hundred and twenty thousand deaths. There were fifty-one persons affected in each thousand living, and the mortality was 36 per cent. These statistics stimulated investigators to attempt to solve the problem of affording immunity to cholera.—*From Protective Inoculation for Cholera, by Dr. S. T. Armstrong, in The Popular Science Monthly for December.*

THE RESTRICTION OF IMMIGRATION.—That restriction of some kind is imperatively needed, all thoughtful persons ad-

mit. It may be many years before we shall have a repetition of the cholera visitation, but we are going to have with us every year, in steadily increasing volume, a great mass of ills in our body politic, introduced therein by the precipitation of a huge mass of foreign voters who know little about our institutions and care even less. The readers of *The Century* cannot have forgotten the impressive article on this subject, entitled "Safeguards of the Suffrage," written by Dr. Washington Gladden, which we published in February, 1889. The argument of that article was that we must restrict the suffrage by improving our naturalization laws in the direction of placing more severe requirements and a longer period of residence upon the aliens desiring admission to citizenship, and that we must also limit the bestowment of it upon natives themselves by requiring more intelligence and character on their part as requisites for its exercise. We have no doubt whatever that if these ideas could be carried into effect—that is, embodied in law—a vast improvement in our political condition would be the result; but the trouble is that the politicians, who are our masters in such things—save during the rare and fleeting moments in which the people become sufficiently indignant to assert their supremacy—would not willingly consent to the changes. A great deal may be accomplished, so far as the foreign-born voters are concerned, by restricting the number, and sifting the quality, of the immigrants, thus making the general average of new citizens from that quarter better; and it may be that this is about all we can hope to accomplish at present. Still, public sentiment is aroused on the subject, and when once a beginning has been made in the right direction, a great deal more may be accomplished than now seems probable.—*Century for December.*

IMMIGRATION NOT AN UNMIXED EVIL.—While readily admitting that in point of numbers we are receiving much more immigration than we need, yet we cannot close our eyes to the fact that it is extremely difficult, if not impossible, to devise a plan of restriction the practical execution of which would not in a large measure exclude the desirable immigration together with the undesirable. The enactment of such plans into laws would inevitably result in a conspiracy of very

important and powerful interests to evade them. For the same reason the enactment of such laws will turn out to be politically impracticable. The probability is that we shall have to make the best of the law as it stands, excluding paupers, idiots, criminals, and so on, perhaps to strengthen it by judicious amendments, keeping in view the limits of existing possibilities, and to employ every means afforded by our political and social institutions to lead the obstreperous foreign elements upon the path of good citizenship. This task will, especially as regards the second generation, appear far less hopeless than it now seems if well taken in hand. In the mean time we should deprecate the extravagant notion at present entertained by many well-meaning people that all the ills of our political and social condition are owing to the influx of ignorant and depraved persons from abroad. Those who take this ground wholly misconceive the origin and nature of many existing evils, and will be apt to overlook necessities of reform and improvement which lie in an entirely different direction.—*From Harper's Weekly.*

“WIT AND HUMOR.”—In the December *Atlantic*, Miss Agnes Repplier thus speaks of the saving grace of humor :

“A keen sense of the absurd is so little relished by those who have it not that it is too often considered solely as a weapon of offence, and not as a shield against the countless ills that come to man through lack of sanity and judgment. There is a well-defined impression in the world that the satirist, like the devil, roams abroad, seeking whom he may devour, and generally devouring the best ; whereas his position is often that of the besieged, who defends himself with the sharpest weapons at his command against a host of invading evils. There are many things in life so radically unwholesome that it is not safe to approach them save with laughter as a disinfectant ; and when people cannot laugh, the moral atmosphere grows stagnant, and nothing is too morbid, too preposterous, or too mischievous to meet with sympathy and solemn assurances of good will. This is why a sense of the ridiculous has been justly called the guardian of our minor morals, rendering men in some measure dependent upon the judgments of their associates, and laying the basis of that

decorum and propriety of conduct which is a necessary condition of human life, and upon which is founded the great charm of intercourse between equals. From what pitfalls of vanity and self-assurance have we been saved by this ever-watchful presence ! Into what abysmal follies have we fallen when she withholds her restraining hand ! Shelley's letters are perhaps the strongest argument in behalf of healthy humor that literature has yet offered to the world. Only a man burdened with an ' invincible repugnance to the comic ' could have gravely penned a sentence like this : ' Certainly a saint may be amiable—she *may* be so ; but then she does not understand—has neglected to investigate the religion which retiring, modest prejudice leads her to profess.' Only a man afflicted with what Mr. Arnold mildly calls an ' inhuman ' lack of humor could have written thus to a female friend : ' The French language you already know ; and, if the great name of Rousseau did not redeem it, it would have been perhaps as well that you had remained ignorant of it.' Our natural pleasure at this verdict may be agreeably heightened by placing alongside of it Madame de Staël's moderate statement, ' Conversation, like talent, exists only in France.' And such robust expressions of opinion give us our clearest insight into at least one of the dangers from which a sense of the ridiculous rescues its fortunate possessor."

SHALL A WOMAN TELL HER AGE?—Public sentiment, especially in cities and unprovincial towns, has outgrown, to a considerable extent, the ungallant habit of considering a woman responsible for her age. But there still exist plenty of men and women who have a ready word of scorn or reproach for the unmarried single woman whose youth has passed. On account of this sentiment many women are sensitive, and not without reason, to inquiries about age. They refrain from allusions which might lead to the discovery of a secret, only because the curious and rude make such age a matter of ridicule. The only remedy for this discomfort is in the cultivation of a different public sentiment. A woman ought to be as willing to tell her age as to tell her name or the name of the town she lives in. With critical ears waiting to hear and speak disagreeable comments, no one can blame

her for keeping silence about a purely personal matter. No son or daughter of a true mother or a chivalrous father ever makes the subject of age, or any other that might cause pain or annoyance, a matter of conversation.—*Helen Marshall North, Harper's Bazar.*

TEACHING RELIGION.—Many people regret that our American school system gives no place to religious teaching, writes Charles Lewis Slattery in the December *New England Magazine*, in a suggestive article on "Can Religion be Taught in the Schools?" Religion, or theology, which is in their eyes the most important of the sciences, is scarcely hinted at in the public school. Now it is quite true that, in schools meant for all people, no particular dogmas can be set forth, because of the wide differences of our so-called creeds. But just as in the great science of Astronomy, you must first get your pupil's mind into a proper attitude, that he may conceive tremendous distances and strangely methodical motions; so, in the greater science of Religion, you must prepare your pupil to understand the infinite power of hidden influences and the reality of things not seen. Hence it is possible to teach religion effectively in the public school; not by offering finished dogmas, but by developing that part of the child's nature which alone comprehends religious truth.

FREE SCHOLARSHIPS.—The young men and young women who aspire to obtain academic or college educations, and whose parents cannot well afford them that expense, will be interested in the work of *The Cosmopolitan Magazine*, which has offered for the year 1893 one thousand scholarships at any of the leading colleges or schools of the United States, upon the condition of introducing the magazine into certain neighborhoods. Yale, Vassar, Harvard, Ann Arbor, Chicago, the Southern colleges, the great schools of art and medicine, all are alike open to the ambitious boy or girl who is not afraid of a little earnest work. *The Cosmopolitan* sends out from its New York office a handsomely printed pamphlet to any applicant, telling just what is necessary in order to secure one of these scholarships. The scholarship itself includes board, lodging, laundry, and tuition—all free.

THE COMMENCEMENT OF A NEW VOLUME OF LITTELL'S LIVING AGE is not an event of very rare occurrence, for this matchless magazine gives its subscribers four large octavo vols., aggregating over 3000 pages, every year. The appearance of the initial number of the 196th volume of a publication so replete with matter of the most interesting and instructive character is, however, worthy of more than a passing word.

The Living Age is rightly named. Whoever possesses a single year's volumes possesses the record of the progress of the world during that period. The various phases of modern thought are presented as set forth by their most distinguished exponents. The foremost writers of the time in every department are represented.

The early issues of 1893 fairly illustrate the wide range of subjects covered by this periodical as well as the matured judgment shown in their selection.

"The Petrie Papyri," by J. P. Mahaffy, relates to the curious and interesting discoveries of Mr. Petrie in Egypt; "A French Abbé of the Seventeenth Century," by Lewis Latimer, is a sketch of that strange character, François Timoléon, Abbé de Choisy; "Burmese Traits," by Henry Charles Moore, presents an extremely interesting paper on the manners and customs of the Burmese. In "The Story of a Free Lance," Charles Edwardes gives us a most readable review of a recent "Life" of Carmagnole, the celebrated Italian. Articles of special interest to the cultivated reader are "Goethe as a Minister of State," by Henry W. Nevinson; "Michelangelo," by Janet Ross, and Niccolo Machiavelli.

Fiction and poetry receive a fair share of attention. The charming short stories will remain a delightful feature of the magazine during the coming year.

To new subscribers for 1893 are offered *gratis* the two numbers of 1892 containing a powerful story by Frank Harris, editor of the *Fortnightly Review*. The present is, therefore, a favorable time for beginning a subscription. For the quality and the quantity of matter given, the price, \$8 a year, is low; while their special facilities enable the publishers to offer their subscribers reduced rates on all the leading periodicals.

Specimen copies of *The Living Age* may be had by sending 15 cents to the publishers, Littell & Co., Boston.

HARPER'S MAGAZINE for December is a superb Christmas number, unexcelled in the quality of its contributions and in the beauty of its illustrations. It opens with an important descriptive article, "A New Light on the Chinese," by Henry Burden McDowell, fully illustrated by Theodore Wores. Among its many other striking features is a play by Mary E. Wilkins, entitled "Giles Corey, Yeoman," recalling the tragedies attendant upon the strange witchcraft delusion in Salem, Mass., two hundred years ago. It is admirably supplemented by four full-page illustrations drawn by Howard Pyle. A series of five illustrations of the ballad of "Lord Bateman," drawn by William Makepeace Thackeray, and here published for the first time, will also attract much attention. Mrs. Anne Thackeray Ritchie in a note of comment tells how these drawings were discovered and how they came into the possession of *Harper's Magazine*. A timely and thoroughly readable article on "Some Types of the Virgin," by Theodore Child, presents an interesting history of the Madonna in art, and is accompanied by eight illustrations from the old masters. Constance Fenimore Woolson contributes an entertaining story of "A Christmas Party," and there is also a charming Christmas tale, entitled "Le Réveillon," by the distinguished French writer, Ferdinand Fabre. Both these stories are handsomely illustrated. "Tryste Noel," a Christmas carol, by Louise Imogen Guiney, is beautifully illustrated by F. V. Du Mond. Thomas Bailey Aldrich contributes a charming poem, entitled "Nourmadee," which is accompanied by several characteristic drawings by H. Siddons Mowbray. Besides the short stories already mentioned, there is a sketch by H. C. Bunner, entitled "Crazy Wife's Ship," with frontispiece illustration by E. A. Abbey; a sketch by Charles G. D. Roberts, "Do Seek their Meat from God," illustrated by Remington; a tale by Owen Wister, "How Lin McLean went East," with four illustrations; a story entitled "Fan's Mammy," by Eva Wilder McGlasson; and a pair of sketches, "A Cameo and a Pastel," by Brander Matthews. Julian Hawthorne contributes a sonnet entitled "The Mystery,"

and Mary E. Wilkins a series of four delightful pastels in prose. In the Editor's Study, Charles Dudley Warner presents some interesting thoughts concerning the development of American literature, and pleads for a more vigorous quality of holiday literature. A new and attractive feature in connection with this department is the introduction of eight illustrations from drawings by Francis Day. The Editor's Drawer is opened with a character sketch by Thomas Nelson Page, and is full of good things for Christmas entertainment.

THE *Review of Reviews* for December sustains with remarkable enterprise and ability the great reputation this magazine has won for timeliness, exact pertinency, and wide range of interest. Among its almost countless illustrations are groups including some thirty of the newly-elected Governors of States. No other magazine could possibly have secured and made such illustrations and actually embodied them in its December number, for in many instances it was not definitely known until the middle of November who were actually elected as Governors. The editor's review of the election and his discussion of the results will attract wide attention. The editorial department entitled "The Progress of the World" is unusually extended this month.

WORLD'S COLUMBIAN EXPOSITION.

THE BUREAU OF HYGIENE AND SANITATION.

THE Bureau of Hygiene and Sanitation of the World's Columbian Exposition has been organized to prepare a collective exhibit illustrative of the present condition of sanitary science.

Starting from the standpoint that "the common health is the common wealth," and that hitherto sanitation and sanitary science have not received that amount of general public support which their importance demands, the Bureau will seek to set before the visitors to the Exposition such a representation of sanitary work and sanitary aids as will help to lift the

general mind to a higher plane in its estimate of the work of sanitation. Not even the most exaggerative optimist would assert that the sanitary arrangements of our chief and best-cared for cities are perfect, while it is well known that those of smaller towns and villages are of the most reprehensible type. On the other hand, the pessimist cannot deny that the last two decades have seen very great and very marked improvements in the theory of hygiene as a science and in its practice as an art ; the "vantage ground" thus gained it is to be hoped will be but a new base from which a more general and complete advance all along the line may be made. That eminent sanitary pioneer, Edwin Chadwick, dared to predict that the realization of municipal and domestic sanitary reforms would eventually result in the establishment of a death-rate of 5 to 7 per 1000 in hygienic districts ; thus every improvement of sanitary measures will be an aid to the fulfilment of Chadwick's vision. The often-quoted but never-to-be-forgotten results of sanitation in the city of Munich is an apt illustration of the benefits derivable. When that city was devoid of sewerage and pure water-supply the death-rate from typhoid-fever—pre-eminently a disease revelling in filth—was 24.20 per 10,000. The illustrious scientist, Pettenkofer, was consulted, and recommended the establishment of a system of sewerage and the introduction of a water-supply from a new source. Upon the inauguration of the new systems the death-rate was reduced to 13.30 per 10,000 ; partial progress further reduced it to 9.26, and the completion of the cloacinæ caused the rate finally to fall to 1.75 per 10,000, at which it has approximately remained.

While much in front of most other countries, the United States, with a death-rate to-day of 18 per 1000, has an arduous advance to make, but it is confidently anticipated that among the many brilliant achievements of the World's Columbian Exposition, that of advancing the work of sanitary reforms will not be the least.

The United States has been the pioneer, and is still the leader in so many departments of the world's progress, that it can scarcely be too enthusiastic to hope that she may rapidly forge to the front and assert her claim to be the leader in sanitation. Nowhere on the world's face are the enormous

piles of masonry so numerous as they are in America, nowhere on the world's face ought the care of public life and health to be so great.

The aim of the Bureau of Hygiene and Sanitation will be to show, as adequately as possible, the position in which the theory and practice of hygiene stand at the present day, and it is hoped that the universities and colleges, the boards of health, State and municipal, the societies having hygiene and sanitation as their key-notes, the scientists, the physicians, the manufacturers, and the public generally will cordially co-operate in the endeavor to make the exhibition worthy of the science and of our country.

Such varied sources will naturally produce varied results. Varied results shown in diverse ways will serve to heighten the general interest in the one theme. The theme has but one end in view, the improvement of the "common health."

A general classification of the division has been made with arrangements for space under the several divisions.

It will be necessary for each exhibitor to MAKE FORMAL APPLICATION FOR SPACE to the Director-General, and it is requested that these applications be made as early as possible, in order that the Department of Liberal Arts may be able to prepare an estimate of the amount of room that will be required. On addressing the Department of Liberal Arts at Chicago, a blank form of application will be sent to exhibitors without delay.

In all cases where foreign countries have appointed Commissioners for the Columbian Exposition, applications for space for exhibits from those countries must be made through such Commissioners.

The Superintendent of the Bureau of Hygiene and Sanitation invites from experts in any of the branches of the science, any suggestions or recommendations that will aid in making the exhibit of the division complete and serviceable.

F. W. BREWER,

Superintendent Bureau of Hygiene and Sanitation.

Approved : SELIM H. PEABODY,

Chief, Department Liberal Arts.

Approved : GEORGE R. DAVIS,

Director-General.

A PHYSICIANS' BUREAU OF SERVICE AND INFORMATION.

Messrs. CHARLES TRUAX, GREENE & CO., dealers in physicians' supplies, have announced their intention of looking after the wants of visiting doctors from all quarters of the globe. The firm has spacious quarters for the work at 75 and 77 Wabash Avenue.

A branch will be in operation in their exhibit in the Manufacturers' Liberal Arts Building at the Fair grounds, and will be in connection with the main bureau by private telephone wire, this being an additional convenience for the use of physicians awaiting important communications, or desiring to reside near the grounds.

No charge will be made for the services offered, and all who are legitimately engaged in the practice of medicine or surgery will be made welcome.

The services offered are :

Headquarters for Physicians.—A reading and reception-room, with writing facilities and stationery, will be provided, where physicians may meet their friends, attend to correspondence, etc. In or adjoining the general headquarters, the secretaries and other officers of medical societies and conventions will be provided for.

Purchasing Department.—Theatre, Exposition, sleeping-car, and railway tickets will be secured, and assistance rendered in purchasing goods in all lines of trade.

Banking Facilities.—Cash will be paid out during banking hours from currency deposited with us and from funds forwarded us direct from banks. Moneys sent us by banks for credit should be accompanied by signature of depositor. Checks and drafts will not be cashed, and will be received only for collection.

Telegraph, Telephone, Stenographic, District Messenger, Livery, Cab, Express, Baggage, and Freight Service arranged for in the building and legitimate rates secured.

Hotels and Boarding-Houses.—A list of leading hotels and boarding-houses will be kept, with location, description, and rates. (Reliable messengers can be procured at small expense to assist strangers in securing satisfactory accommodations.)

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CHOLERA, QUARANTINE, AND IMMIGRATION.

A NATIONAL QUARANTINE IMPLIES NATIONAL EXCLUSION.

By C. W. CHANCELLOR, M.D., Secretary of the State Board of Health of Maryland.

THE object of this article is to assist the determination of those who are discussing with themselves or others the subject of cholera, and the possibility of excluding it from our shores by quarantine regulations; and also the problem whether this great country, with nearly three million square miles of territory, practically unpopulated, should prohibit immigration as a sanitary measure.

In the whole range of politics, nay, even in that of science itself, there is no subject on which such vague notions have prevailed; none respecting which men's minds have been so completely and so generally mystified as that of the etiology and spread of Asiatic cholera, and the possibility of excluding it by quarantine regulations. The subject certainly opposes to its investigation no peculiar difficulty; but by the aid of one enormous assumption, and by failing to distinguish between one or two well-ascertained facts, which it is essential to discriminate, the extent to which both medical and unprofessional men of the greatest intelligence have allowed their understanding to be abused is perfectly astonishing.

For many years the subject of excluding cholera and other diseases from communities and countries by non-intercourse measures, more or less restrictive, has seemingly had the effect of depriving the physician, the sanitarian, and the statesman

of the power of applying to its investigation the commonest rules of reasoning ; and men have argued on this topic, apparently to their own satisfaction and to that of others, in a manner which would have covered them with shame and overwhelmed them with confusion had they so done with reference to any other subject of human inquiry. And yet it is a subject on which it is of the greatest importance that the ideas should be clear and the judgment sound. It is intimately connected with the well-being of millions of the human race ; it is interwoven with the commercial welfare of nations, and with the interests of this country in particular ; and the whole system of quarantine laws is entirely dependent upon it. To this subject the anxious attention of Congress has already been directed more than once. When the investigation was first instituted, ignorance was not blamable ; prejudice was unavoidable. At present the case is different. There are facts which it is now criminal not to know ; there are prejudices which it is disgraceful any longer to entertain.

Before proceeding to investigate the subject, it is proper to observe that the most distinguished medical men in this country have, with singular unanimity, avowed themselves the advocates of an absolutely restrictive quarantine system for the exclusion of cholera. But it is by no means exclusively a medical question ; it is really a question of national importance, to be decided by facts which every one can understand ; a question of testimony, to be determined by evidence which every one can appreciate. Let us, therefore, look at the subject in a practical way, free from the restraints and prejudices of professional bigotry or the unreasoning fear of the statesman. For this purpose it would seem to be important to collate and record, as definitely as possible, certain facts concerning the origin of cholera and its usual methods of transmission.

The incidence and spread of cholera have heretofore been governed almost invariably by the proportion of material found ready made to its taste—that is to say, the number of ill-fed people living in filthy, crowded houses, and breathing a polluted atmosphere. New York fought the cholera last summer by every effort and artifice that science could suggest or energy execute, but in spite of the great energy displayed by national, State, and municipal authorities, the ready material

was there, and a dozen or more persons fell victims to the disease. At once it was proclaimed that the *fons et origo malorum* was several infected ships anchored in the lower bay, under quarantine surveillance as rigid as any that could well be devised. The disease entered the city, but it was not communicated from the steerage to the cabin passengers on the infected ships; and on this it is that we are asked to rest our faith in the tremendous efficacy of quarantines. It would have been reasonable to suppose, *à priori*, that a disease arising from specific causes inhering in the individual and his personal effects would observe peculiar laws, and spread from person to person as readily on board ship as in the city; but it was not found to do so in the case of the *Normannia* at the port of New York recently, and a knowledge of this fact is essential to an understanding of this subject.

It has been established by a multitude of evidence perfectly overwhelming that cholera will not spread by contagion from person to person, but only through infected food or drink, or an infective principle in the atmosphere dependent upon local conditions. Professor von Pettenkofer, of Munich, the great modern authority on such subjects, in an address published in the *Munchener Medicinische Wochenschrift*, November, 1892, said that "the etiology of cholera is an equation with three unknown quantities, namely, x , a specific germ disseminated by human intercourse; y , a factor dependent on place and time, which he calls 'local disposition,' and z , the individual predisposition." While not denying that x , the specific germ, has some etiological importance, Professor von Pettenkofer says he cannot think that the comma bacillus, without the assistance of local disposition, can cause epidemics of cholera. Practically he believes that local, physical, and sanitary conditions must be attended to in order to make a place cholera-proof.

To show his utter disbelief in the cholera being transmitted by germs of the disease, except where the "local disposition" exists, Professor von Pettenkofer obtained some cholera bacilli from Hamburg, which he carefully cultivated in bouillon, and after neutralizing the small amount of acid in his stomach to produce a good medium for the development of the cholera spirilli, he swallowed a draught of the fresh bouillon contain-

ing numberless comma bacilli, from which he experienced no inconvenience except colicky pains and a moderate diarrhœa two days after. The stools were examined bacteriologically by Drs. Pfeiffer and Eisenhohr during the duration of the diarrhœa, and were found to be swarming with comma bacilli, yet there were no symptoms of Asiatic cholera. Professor Emerich made an exactly similar experiment on himself, with much the same result.

A specific virus or germ entering the human system cannot enjoy more than a temporary interval of calm—a period of incubation—after which it must work its work of destruction or cease to be a factor in the causation of the disease. “Places as well as persons,” says von Pettenkofer, “often enjoy immunity, and places which suffer at one time often remain free at another, even when the ‘specific germ’ and the ‘individual predisposition’ are present.” But the nature and the degree of the local conditions, such as narrow, filthy streets, bad drainage, impure water, ill-ventilated and overcrowded houses, polluted soil with a certain degree of hydration, and the state of the weather exercise an important influence both in the causation and dissemination of cholera, and thus the seat of the disease may be considered essentially local.

From the date of the earliest historical records, the opinions of men have been divided on the subject of the causes and origin of pestilential diseases; and modern physicians and scientists, unable to account for the spread of pestilence on the principle of extraordinary seasons, and disdaining to admit that such diseases can arise *de novo* from putridity of the air or pollution of the water, have resorted to invisible animalculæ concealed in clothing or bales of goods transported from foreign countries and let loose at certain periods to scourge mankind. The great Sydenham ascribed pestilence to *occult qualities* of the air, and explained the peculiar symptoms of diseases by the influence of an *epidemic constitution of the air*. His “occult qualities” have been ridiculed by later physicians; but so far as his theory in this respect has been neglected the science of medicine has degenerated, and the cause of humanity has suffered. One of the most important as well as most difficult branches of medical science is to ascertain the effect of the

reigning constitution of the air on prevailing diseases, and to apply that knowledge to the arrest and cure of those diseases.

In opposition to the theory that cholera is never bred or propagated in America, but always imported from abroad, it is very probable that the disease may, and generally does, originate in the country where it exists as an epidemic. The common opinion of the propagation of pestilential diseases solely through the deadly germ diffusing itself in the air has had a most calamitous effect on medicine and human happiness. It has prevented the researches of modern scientists who might have been able, by a diligent and comprehensive view of the subject, to trace pestilence to its real causes, and to suggest the true means of avoiding the terrible scourge of Asiatic cholera, without denying to trade and travel any of those facilities which consistently with every prudential regard for considerations of protection and safety it may be permitted to enjoy.

The quarantine theory errs in demanding the exclusion of the germ of the disease, at the expense of neglecting all other sanitary precautions. Such restrictive measures, when carried beyond the point of mere inspection and disinfection, are utterly useless and always injurious, not only to commerce, but to communities as well, inducing a condition of the public mind which readily results in a disgraceful panic such as was witnessed at Fire Island last fall. Cholera is to be dealt with on the same general principle as all other diseases, and that is, that every sanitary defect must be sought out and, as far as possible, remedied.

Keeping within the definite limit of established facts, it is to be noted that quarantine has, with rare exceptions, if not invariably, proved an utter failure in excluding infectious diseases from any community or country, nor does it follow that the entrance of an infected ship at any port will necessarily spread the disease in that port. There are no recorded facts to show that restrictive measures have ever succeeded in keeping the cholera out of any country, or even in staying its progress, where the local conditions are favorable to its spread. Under such circumstances there can be no parallel to the folly of attributing every outbreak of cholera to infected persons or infected merchandise, and of establishing quarantine restric-

tions inessential to their object and destructive to commerce. The following recorded facts have been selected from many of a similar character to show that cholera does not spread from immigration, nor from the importation of merchandise in places where the "local disposition" necessary for its propagation is absent.

Prior to May 1st, 1832, 30,000 immigrants had arrived in the St. Lawrence River from infected ports in Europe, and yet not a single case of cholera developed in Canada or the United States, until the middle of June, 1832, when the first case occurred in Montreal, and from this centre of infection it spread throughout the United States.

On December 2d, 1848, a steamer infected with cholera landed in New York. Of the immigrants by this steamer, 50 died at the quarantine, which at that time was merely nominal, and yet not a case of the disease occurred outside the lazaretto until the 11th day of May, 1849, nearly six months after the deaths at quarantine, when two deaths were reported in the city of New York.

In November, 1853, no less than 20 vessels, on which 1141 persons had died of cholera, arrived at the port of New York, but the disease did not obtain a foothold in the country until January, 1854, at which time it broke out *in the city of St. Louis*. From this centre it passed to Chicago in April, to Detroit in May, and in June it became epidemic in New York.

In 1865 three steamers arrived at New York from Havre on which there had been deaths from cholera during the voyage, but no cases occurred in the city. In the spring of 1866 cholera was carried into Halifax by the steamer *England*, of the National Line, which vessel afterward proceeded to New York, where, on April 20th, she landed 895 passengers and 116 officers and men, having lost 316 by cholera. There were eight cases and five deaths among those who had to do with the vessel at Halifax; but there was no further extension of the disease, and not a case occurred in New York from this importation. Subsequently, however, there were 3000 arrivals in New York of individuals who had been directly exposed to the infection at Liverpool, on shipboard and at quarantine, but so slowly does the cholera spread from person to person (except where there is an epidemic constitution of the air),

that there were only 21 deaths from the disease in New York up to July 8th, 1866, although there were frequent arrivals of cholera-infected ships during all the time.

The epidemic of cholera which decimated Memphis, Tenn., in 1866, made its appearance about the middle of July of that year. The pestilential constitution of the air which pervaded the whole of the Mississippi valley at the time was powerfully aided in Memphis by local vitiations, and not by an imported contagion. The writer of this was at the time a practising physician in Memphis, and connected with the Health Department of the city, and is entirely familiar with the onset of the disease. After minute inquiry, he was unable to ascertain that the first person attacked by the disease—a mechanic who lived and worked in a part of the city remote from the river front—had had any intercourse whatever with persons who had come from any other place; nor could direct personal intercourse be traced between any two of the first half dozen cases which were developed rapidly and simultaneously in different parts of the city, without the sick having had any intercourse one with another.

During the month of December, 1872, and January, 1873, there arrived at New Orleans a total of nearly 2000 immigrants from cholera-infected districts in Europe, but it was not until May or June, 1873, that the initial case of the disease occurred in that city. In 1884 cholera prevailed epidemically in France and Italy, the feature of the epidemic being the vigor and deadliness of the attack, and, notwithstanding the constant intercommunication between those two countries and the United States, and the general inefficiency of our quarantine system at that time, not a single case occurred in this country. Fugitives from Marseilles and Toulon died at Aix, Grenoble, Nimes, and other towns in Southern France, but the epidemic was not kindled in either of these places, nor were any persons attacked except such as brought the disease with them. It was estimated, on good authority, that 100,000 persons from Marseilles, and 50,000 from Toulon, during the epidemic of 1884, were distributed throughout France, Austria, Switzerland, Belgium, and the Netherlands, but no authenticated case of cholera occurred among this army of fugitives at any point north of Grenoble.

It may be said that these are isolated facts ; that in this argument individual cases, however striking, however calculated to impose on the imagination, ought to be reckoned as nothing, and that no events but such as are on a large scale can warrant any general conclusion. Be it so. There are proofs of the same thing on as large a scale as can be desired. It can be shown by official documents that the most rigid quarantine laws, enforced by the whole power and authority of despotic governments, were of no avail in warding off cholera from Astrachan, Moscow, St. Petersburg, Berlin, Breslau, Vienna, Hamburg, Paris, Cairo, and Alexandria.

The cholera appeared first in England in 1823, in the town of Sunderland, notwithstanding the most vigilant quarantine, amounting almost to non-intercourse with the world ; it also sprung up suddenly in other towns, both in England and Scotland, when the most vigorous restrictive measures had been practised. In 1830 Braslau, the capital of Silesia, which was considered to have the most perfect system of quarantine, both on the frontiers and on the river Oder, was suddenly alarmed by cholera appearing in one of its suburbs. The first case was a female who had never quitted the city, nor been in communication with any person suspected of being infected, nor engaged in any traffic of any kind. In a few days after her death many persons were attacked with cholera, in parts of the city remote from each other, and without having had any communication one with another. About the same time Berlin, despite a sanitary cordon, composed of the choice troops of the kingdom, under the eye of the sovereign himself, became a theatre for the ravages of cholera.

The inhabitants of Hamburg, the same year, looking with anxiety toward Berlin and the country to the eastward, and enlisting all the means in their power, by sanitary cordons and quarantines, to prevent the disease from approaching from any quarter, found it suddenly appear in the city, rising as it were from the ground and attacking all sections of the city and all classes of the community simultaneously, without the sick having had intercourse one with another. The disease could not be traced to importation from any source, but the sanitary conditions of the city were notoriously bad. Similar restrictive measures imposed by the Austrian Government

were attended with the same want of success, and Vienna became the seat of the disease, while many places where no artificial barriers had been interposed escaped entirely. These facts produced a great impression upon most of the governments of Europe, and thereafter they released vessels from the necessity of performing a rigorous quarantine; that is to say, many of the governments repealed the most obnoxious features of their quarantine laws.

Still other reasons and facts might if necessary be adduced showing the folly of establishing any such rigid quarantine system in this country, as that now advocated by many persons of judgment, and which seems to have crystallized into public sentiment under the nurturing care and diligent advocacy of the Marine Hospital Service, whose chief officer is to become the executive head of all the ports and railway stations of the country—an official anomaly which, in point of commanding importance, unlimited power, and imperial control over the movements of trade and travel, will surpass the authority of any officer in any known civilized government—a refined despotism that rivals the government of barbarous States.

In the 18th Annual Report of Dr. Cunningham, the Imperial Sanitary Commissioner of India, bearing upon this subject, he says, page 127, "The experience of fairs and other gatherings in this country (India) has again and again testified to the truth of the conclusion that cholera is not carried by persons from one locality to another, so as to cause persons not themselves exposed to the necessary local influence (the "local peculiarities" of von Pettenkofer) to become affected by the disease."

In reporting to the United States Government the supposed cause and transmission of cholera in Europe during the epidemic of 1884, Consul Mason, of Marseilles, says, "It is to be noted that this year (1884) has witnessed the utter failure of the quarantine system. At the first signal of danger from Toulon and Marseilles, Italy established a rigorous quarantine, both by land and by sea, against France; and yet cholera has spread to nearly the whole of Italy, from Turin to Naples. Corsica imposed a quarantine against all arrivals from every mainland port of the Mediterranean, which for bar-

barous rigor recalled the Middle Ages ; but even Corsica has not escaped."

Consul Mason further states (Report to State Department, Washington, July 31st, 1884) : " Arles, which is an old, densely built, and badly drained and ventilated city, has been most severely stricken, and the panic there has been so extreme that three-fourths of the entire population have fled. At Nimes, however, less than twenty miles distant, a number of refugees from Marseilles and Toulon have died of cholera, but the city is so clean and the sanitary management so good that the contagion has not been kindled there."

In this connection it is worthy of note that England, Belgium, Germany, Switzerland, and Austria, that took no precautions against cholera during the outbreak in France, remained almost entirely free from infection, only a few cases having occurred among the refugees who had taken shelter in Switzerland and Austria, while Italy, with the most rigorous coast and frontier quarantine, was not able to keep off the disease. The action of the Italian Government in imposing such restrictive measures was severely criticised by the eminent Italian authority Tommaso Crudeli, who had made a special study of cholera, and declared his belief " that such precautions are useless ; that they lull the people into a false security, besides entailing a serious and unnecessary injury upon trade."

The relative advantages of the English system of " medical inspections" and of " quarantine," as against cholera in the ports of Europe, underwent the most thorough discussion at the International Sanitary Conference, which was held in Vienna in 1874. A large majority of the delegates, including those from every State of the first rank in Europe, except France and Italy, declared in favor of the former system, and France agreed to a system which would greatly diminish the stringency of quarantine as heretofore practised. At the Paris Congress, held some years later, the question of quarantine was brought up by the English delegation, and Dr. Vignard, who was formerly attached to the European Danubian Commission, energetically attacked Dr. Proust, whom he accused of trying to maintain the old and obsolete faith in quarantines. He observed, very truly, that, " It is only when

seaport towns present a soil which cannot be penetrated by exotic morbid germs that they can hope to escape cholera. Any restrictive quarantine measures," he remarked, "that go beyond mere *observation* and *disinfection* are not only useless but barbaric." Again, at the Sanitary Conference held in Vienna in 1884, the delegates, present from nearly every State in Europe, approved, by a unanimous vote, the report submitted by Professor Brouardel, of Paris, commending the English system of "medical inspections" in lieu of quarantines.

Unquestionably the first law is that of self-preservation, but the need of a law stringent as that contemplated in the several bills before Congress to protect the people of this country from an invasion of the cholera, has yet to be satisfactorily determined. There is a disposition on the part of many to make the condition of affairs in this country worse than it really is, in order to secure the doubtful advantage of a national quarantine. The most trustworthy and scientific authorities of Europe, some of whom have been quoted above, do not concur in the opinion, so generally expressed by the medical men of this country, that the only, or even the best way to exclude cholera is that of hermetically sealing our ports against ships from all infected places. In fact, such rigorous exclusion is denounced by the savants of Europe as an unfit survival of a custom more commonly observed in the Dark Ages.

It has been stated that the closest intercommunication was maintained all through the epidemic in Hamburg, last summer, between that city and other European cities. The communication by sea and by land between Hamburg, the chief continental seat of cholera, and Liverpool and London, or Berlin and Vienna, is said to have been constant, voluminous and direct, but there were not more cases of the pestilence in either of those four cities than in the city of New York, which maintained the strictest quarantine, supplemented by the action of the United States Marine Hospital Service in rigidly enforcing twenty days' quarantine of all ships coming from foreign ports and carrying emigrants, even to the extent of forcing hundreds of passengers to remain in infected ships, among the dead and the dying, during the time—an act of

cruelty which coming generations will regard with the same horror that we now do the persecutions of the witches in the seventeenth century or the cruelties of the Black Hole of Calcutta. Progressing on this line, our next step toward the practices of the barbaric ages and institutions of the world will be to draw lines of circumvallation around the town or district to be protected, and to station, beyond these lines, cordons of marines, armed with cutlass and mitrailleuse, as a means of preventing the entrance of pathogenic germs in the atmospheric currents which convey such germs unseen from place to place or country to country.

Our government has gone so far as to require vessels coming from foreign ports to perform quarantine for twenty days, whether any cases of disease have occurred during the voyage or not. The reason why twenty days have been fixed on as the period necessary and sufficient to exterminate infection in all its known and unknown states, no one has ever pretended to assign. Let us look at the system in relation to merchandise. The argument against a national quarantine, as applicable to merchandise, is short and unanswerable. As the germ of cholera is, according to Professor Koch, killed by drying, and as it cannot be conveyed by currents of air *except when dry*, but little importance is attached by scientists to the influence of the atmosphere in contaminating merchandise. The only way, therefore, in which goods can be contagioned is by being handled, or by coming in contact, by some means or other, with those affected with the disease. But people sick with cholera cannot labor in the fields to gather the raw materials; they cannot labor in the various processes by which the raw material is manufactured; they cannot labor in the warehouses, at the docks, or on board ship, in order to pack and store these goods. It is not, then, particularly easy to see how merchandise can become impregnated with the infectious matter, or germs of the disease.

But granting that merchandise may be infected, what immunity is afforded a community by quarantine from contamination by pestilential contagion conveyed in such goods? Bills of health are documents from consuls to ships sailing from places subject to their consular jurisdiction, certifying the state of health of these places in reference to pestilential

diseases at the time of the departure of the vessel. A foul bill declares the presence and a clean bill the absence of contagious or infectious disease in the seaport from which a vessel departs at the period of her sailing. Now suppose two ships to load with clean cargoes in a period of health. One sails a day before the other ; in the mean time a single case of disease occurs in port ; this obliges the detained ship, although she may have had no communication whatever with the shore, to sail with a foul bill. On their arrival at New York, or any other seaport in the United States, one ship is immediately released ; the other is obliged to perform quarantine, under the President's proclamation, for twenty days. Again, two ships load with foul cargoes during an epidemic. One sails thirty days after the pestilence has ceased ; under the forty days' quarantine system she must carry a foul bill ; the other waits ten days more, when she is entitled to a clean bill. The ship with a foul bill will be obliged to undergo quarantine for twenty days, that with a clean bill will discharge her cargo in three or four days ; but it is obvious that the danger in each case is equal, and, were the danger real, the ship with a clean bill must of necessity convey contagion to the market in which her goods are sold. Once more, a ship loads with a foul cargo during pestilence ; she waits forty days after its termination and sails with a clean bill. Another ship loads with a clean cargo during these forty days ; she is detained a few hours, and a case of cholera is reputed to have happened in the port ; she has no communication with the shore, yet she is obliged to sail with a foul bill. In this case, also, a contagioned cargo is covered with a clean bill, and a clean cargo is accompanied with a foul bill. It is certain, therefore, that, were contagion capable of being conveyed by goods, the cargoes of ships with foul bills would often be without the slightest danger, while the cargoes of ships with clean bills would frequently be extremely perilous. From these facts, it is clear that the system of quarantine as practised in this country cannot be supported by bills of health, the last prop on which it stands.

Of systematic action adopted in England for the prevention of the importation of pestilential diseases, the system of quarantine, in the commonly received sense of the term, forms an

extremely small part, if indeed it may not be said to be abandoned, another system, that of medical inspections, having for many years past been employed. The regulation, moreover, of quarantine in England is not a function of the general government, but is controlled by the *local authorities*, which, aided by their respective boards of trade, deal with it from a commercial as well as sanitary standpoint.

So far as regards quarantine itself, it may be further observed that although the English Quarantine Act provides for land quarantine and the quarantine of inland waters, as well as for maritime quarantine (internal and external quarantine so to speak), it does not appear that internal quarantine has ever been enforced in England, and maritime quarantine only to a very limited extent. Against cholera quarantine has not been enforced since 1858, its futility as a precautionary measure having been at that time abundantly demonstrated.

Mr. John Simon, the great English sanitarian, and late chief sanitary officer of the realm, has said that, "Only in proportion as a community lives apart from the great highways and emporia of commerce, or is ready and able to treat its commerce as a subordinate political interest, only in such proportion can quarantine be made effectual for protecting it. *The conditions which have to be fulfilled are conditions of national seclusion.*"

The experience of every people and every nation, since all created animal life was quarantined on Noah's ark for the regulation period of *forty days*, attests the inutility, nay more, the folly, of attempting to exclude infectious diseases by mere quarantine regulations. A theoretically perfect quarantine, which it should be impossible to break at any point, and which must of course include the full period of incubation of the particular disease quarantined, would doubtless, if practicable, afford a certain higher degree of security against the introduction of disease than is to be attained in any other way ; but where are the conditions of a perfect quarantine to be found, and at what cost would the experiment be carried on ? A perfect quarantine can only exist in imagination, and a quarantine which is not perfect is simply an irrational derangement of commerce without any benefit to public health.

What we need, and all that we need in this respect, is "a

system of medical inspections" as practised by the English Government, which differs from "quarantine" in the following essential respects :

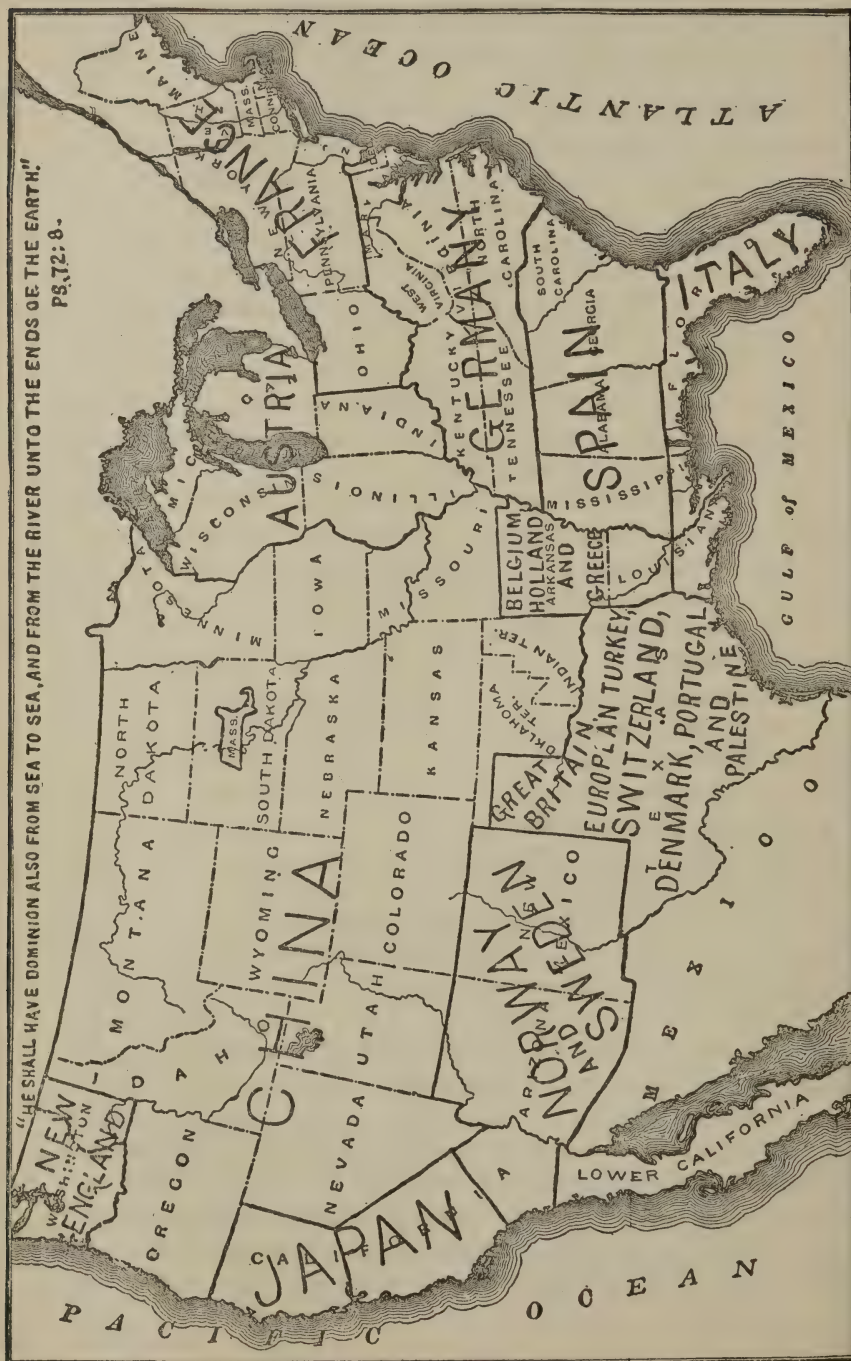
1. It affects only such ships as have been ascertained to be, or as there is reasonable ground to suspect of being *infected* with pestilential disease. No ship is deemed infected unless there has been actual occurrence of the disease on board in the course of the voyage.

2. It provides for the detention of the vessel only so long as is necessary for the requirements of a medical inspection, for dealing with the sick, if any, in the manner it prescribes, and for carrying out the process of disinfection.

3. It subjects the healthy on board to detention only for such length of time as admits of their state of health being determined by medical examination.

In regard to the question of immigration, it may be stated that we have about 65,000,000 people in the United States, while we have unoccupied territory that will comfortably accommodate at least 300,000,000 inhabitants, and, if settled as thickly as Belgium and some other European countries, the surface area would contain a population not less than 1,250,000,000 people. If, therefore, we can secure a desirable class of immigrants, the fear of cholera should not induce our government to turn them away. They will not only serve to fill up the desolate wilds of America, and "make two blades of grass grow where one now grows," but they will supply much needed labor to the plantations of the South and the farm lands of the West.

On this subject we cannot do better than quote from the editorial columns of the Philadelphia *Public Ledger*, December 22d, 1892 : "The immigration question," says the *Ledger*, "is one of very grave character, and it is one which should be determined upon its own merits and not be rolled along with and into the question of quarantine so that they both appear to be one and the same. It is in the highest degree essential to good public policy that immigration should be restricted. The morally and physically defective classes, of which so many are crowding into the country, should be rigidly excluded ; and these classes are made up in only scant measure of criminals, idiots, and paupers. Restriction should not be set



SIZE OF THE UNITED STATES (EXCLUSIVE OF ALASKA), COMPARED WITH OTHER COUNTRIES.

up against the intelligent, capable, industrious, thrifty immigrants, but against their opposites. No law should be passed empowering the President to shut the ports of the entire country against all classes of immigrants ; not only sagacious but just discrimination should be made between the capable and the incapable, the fit and the unfit, the worthy and the unworthy. The better classes add to the wealth and power of the nation just as certainly as they add to its brawn and muscle."

The United States possess inexhaustible tracts of fertile land—nearly all that labor and skill can produce from it is clear gain, and to render it productive little more than labor and skill is requisite. But the climate has not obtained that salubrity and purity which is so much to be desired and which will eventually characterize it. Cultivation renders a country more healthful as well as more productive. The low grounds of the South require draining and cultivation ; and the thick forests of the West, by preventing evaporation, produce marshes, swamps and collections of water, which in their turn generate mists, chilly winds and agues : they will not be cleared for many centuries to come unless by the industrious and thrifty immigrants.

The South especially requires immigration. In respect of climate the Southern States are more congenial to the European constitutions, more healthful and better adapted for regular and constant labor, than the climate of Canada or the Western States of America. In the South the heat in summer is not excessive, the average being about 80° Fahr. at noon, in winter from 50° to 60° ; so that the heat of summer and the cold of winter can offer no long or serious impediment to the labors of the field or the forest.

The nature of the soil is the next consideration which invites immigration to the South. The actual fertility of the soil, and the time, labor, and expense that it will require to draw from that fertility the produce it will yield, is an object of the greatest moment to the immigrant. Of soils, therefore, of equal fertility, covered with grass or few trees, or heavily covered with large timber, the first ought to be chosen. Of soils of equal fertility, in a temperate climate with a short

winter and a severe climate with a long winter, the former is certainly to be preferred. The greater variety of productions, moreover, to which the milder and more equable temperature of the South is adapted, give it a decided and positive superiority. The voice of the "New South" should be : LET IMMIGRANTS COME, AND HINDER THEM NOT.

MANURE NUISANCES AND DIPHTHERIA.

A PRACTICAL LESSON FROM ABROAD.

DIPHTHERIA IN THE PARISH OF BRADWELL, IN RELATION TO MANURE NUISANCES.

By JOHN C. THRESH, M.B., D.Sc. Lond., D.P.H. Cantab., Medical Officer of Health to the Essex County Council, and to the Chelmsford and Maldon Rural Sanitary Authorities.

Description of the Parish.—The parish of Bradwell, in the Maldon Rural Sanitary District, Essex, forms a projecting angle between the North Sea and the estuary of the Blackwater, and has about ten miles of seashore. It has an area of 4704 acres, and its population at the recent census was 905. The central portion of the parish is the most elevated, the soil being brick-earth. This lies upon the London clay which is exposed around the margin. Beyond this, on the sides bounded by the sea, lie the "marshes," tracts of rich alluvium only just above sea level. A considerable portion of the population is engaged in agricultural pursuits, the people residing in the scattered farm-homes. The village proper is nearly in the centre of the parish, and contains less than half the total population. At what is called the "Waterside" (near the mouth of the Blackwater River) there is a small hamlet of about thirty cottages, and a landing-stage. Most of the cottages are occupied by fishermen or bargemen. Seven are occupied by the coastguard. A main road runs in a southerly direction from the landing-stage, and about a mile from this point it branches in various directions. Everything

unloaded at the landing-stage must be carted along this road, and cottages are dotted here and there at both sides. Most of the "imports" consist of coal and manure, while the "export" is almost entirely farm produce.

The houses at the Waterside drain into ditches discharging directly into the tidal river. At the time of the diphtheria outbreak one of the ditches at the rear of the coastguard cottages had become very offensive, the outlet into the river having become blocked. Water is derived from various shallow wells, nearly all of which show signs of more or less serious pollution.

In the following table some of the mortality statistics for the parish of Bradwell and whole of the Maldon Sanitary District are compared. The figures given are the means for the ten years 1881-90.

Death-rates per 1000 Population.

	From all Causes.	Diphtheria and Croup.	Phthisis.	Cancer.
Bradwell.....	15.6	.00	2.73	.84
Maldon, R.S.D.....	15.1	.36	1.57	.48

The general death-rate is seen to slightly exceed that of the whole district, while the mortality from phthisis and cancer is very excessive. On the other hand, the parish has for a long time enjoyed complete immunity from diphtheria. I can find no record of even a suspicious case during the last thirteen years; the medical man practising in this district (E. C. Petifer, M.B., Lond.) says that during the time he has been here—seven years—he has not seen a case of diphtheria in his practice except some which occurred in Fillingham (three miles away) last year, and which were associated with scarlet-fever.

The Diphtheria Outbreak.—On May 24th the schoolmaster of the only school in the parish wrote me saying, "George W., Waterside Road, one of my scholars, died yesterday afternoon. His parents sent word a few days ago to say that he was not very well and had a sore throat. Up to Friday last (the 20th inst.) the boys have been attending school remarkably well, and no case of sickness came under my notice. Yesterday, however, I marked five boys sick. The mistress

of the girls' school informs me that there were several cases of sore throat among her scholars last week, but this week her attendance has improved." As I could not go over on the day upon which I received this letter I wrote to Dr. Pettifer, and on the 26th he replied, "I did not see George W. till after death. No means of ascertaining true cause of death until to-day, when a brother develops undoubted diphtheria; . . . there are several children away from school with sore throats."

Immediately upon receipt of this letter (27th) I visited the parish, calling first at the school and examining the registers. All the children present at the time and who had been absent during the previous fortnight were questioned as to the cause of absence, and where the replies were not satisfactory I examined the throat, etc., and afterward called upon the parents. Only three or four admitted having had a "cold" and slight sore throat, and these were in the girls' department; they had not suffered from "sickness or headache," and had only been kept at home two or three days. Several girls were absent, and these were said to be suffering from sore throats. In the boys' school four children were away who were supposed to be ill, but none of the lads present complained of having had sore throats. Taking the whole school, the child who had been away longest was Bessie J., daughter of a farm laborer, residing in a cottage at "Weymark's," a farm on the marshes about one and a half miles from the school. Other children attending school from the same farm said she was or had been suffering from sore throat, but all denied that they had had any such affection. My first visit therefore was to this farm. In the little colony there (farm-house and three cottages), the girl (*æt.* 12) was found assisting in home duties, and the parents said she had been kept at home partly because she had had a cold and partly to help the mother in the house. The illness had evidently been very trivial. Neither the girl nor the mother could say upon what days she complained of her throat. (The day on which she last attended school was Friday, May 13th; marked absent on Monday, 16th.) Neither the father nor mother or other children in the house or any of the members of the other families here, though closely questioned, seemed to have had any sore throat or even a slight

cold. I examined Bessie J.'s throat, questioned the parents as to any change in her voice, difficulty in swallowing, etc., and other signs of post-diphtherial paralysis, but all the evidence was negative. There was no evidence whatever of diphtheria. The child does not look strong, and the mother says she is very delicate. I found that a brother of the boy W., who died of diphtheria on the 22d, worked on this farm, but he denied having had any throat affection. (He had an attack of diphtheria six weeks later, no doubt contracted from other members of his family.)

I next called at every group of cottages and at every house from which a child had recently been or was absent from school.

To sum up the result of this, which was practically a house-to-house examination : I found only two cases of throat affection in the village itself, and both patients (boys) had been and were still under Dr. Pettifer's charge. Dr. Pettifer, whom I met in the village and who rendered me every assistance, says neither are diphtherial. I visited and examined both patients, and have no reason whatever to dispute his diagnosis. No persons besides these had even had sore throats recently. When I got to the Waterside and began to call at the houses along the Waterside Road, however, complaints as to sore throats were comparatively numerous, and were usually accompanied by the voluntary information that a good deal of "London muck" had recently been carted along the road from the wharf. With the exception of the undoubted cases of diphtheria at W.'s, C.'s, and K.'s, to be referred to directly, all the throat affections had been very slight ; so slight indeed that they were scarcely noticed, and in no instance could I get any exact dates. It, however, seemed tolerably certain that all had occurred since about May 14th. I could hear of no case of sore throat before that date ; all seemed to have occurred within the fortnight preceding my visit.

The first undoubted case of diphtheria was that in W.'s family, referred to in the schoolmaster's letter of May 24th. The cottage they occupy is one of a pair standing on the roadside. No garden or ground in front and very little behind. Privy near house, with defective cesspit. Ditch run-

ning at back of houses also offensive. The family consists of (or rather consisted of prior to outbreak), father, mother, and five boys from two to fifteen years of age. The father attends to a portable engine used for various purposes on the farms in the neighborhood, the eldest boy is a laborer at Weymark's farm, three other lads attended the schools, and the youngest is scarcely out of its mother's arms. All the family are exceedingly delicate, and constantly under Dr. Pettifer's charge. On May 18th the boy George, aged nine, who had been attending school regularly, complained of headache, and his mother, thinking he was having one of his usual bilious attacks, kept him from school. He got no better, but never complained of his throat until the 21st. He does not appear to have been seriously ill, or to have been considered so until the 23d, when his breathing became difficult. This was attributed to bronchitis, but as he now got rapidly worse, the doctor was sent for. The lad died before his arrival. The next boy, Harry, aged four, was attacked on the 24th, and died on June 1st. The house was cleaned and disinfected immediately after the funeral, but on the 6th a third boy was attacked, on the 8th the father and mother, on the 15th the infant. The three former recovered, the youngest died on the 22d. The house was again disinfected, but on July 12th the eldest boy was attacked and is still ailing; and one of the boys, who had apparently quite recovered, was again affected.

Another child absent from school at the time of my first visit was Minnie C., the daughter of a coastguardsman. She was last at school on May 18th, and was kept away because she complained of not being well. The mother is certain that she never complained of her throat until the 24th, and the medical man was not called in until the 27th, when the child was found to be suffering from diphtheria. She has since recovered, and none of the other inmates of the house have been attacked. On the same day the wife of a coastguardsman living in the same block of cottages complained of her throat, and I found an unmistakable diphtheritic deposit on the tonsils. Four children from this house were attending school, but none of them had been ailing. One of them has since had a slight attack of diphtheria. Both mother and child have made a good recovery. On the opposite side of

the road, in the house of Thomas K., a mariner, I found a child, aged nine years, suffering from undoubted diphtheria. He had complained of sore throat on the 25th, and on the 26th was too unwell to attend school. There were five other children in this house (aged from five months to fourteen years), but no one else had been attacked.

At the old workhouse cottages I found two girls, aged twelve and eleven years respectively, also suffering from diphtheria. Both these and three other children from this house attended school. The elder of the two died on June 3d, the other and two younger children afterward infected have recovered. This is an exceedingly dirty house. Last year I had to certify that it was in such a dirty and unwholesome condition as to be dangerous to health. Under Section 46, Public Health Act, 1875, the owner was called upon to cleanse and whitewash, which he did ; but the house is again in nearly as filthy a condition, though a certain amount of cleansing and limewashing has been done since the death of the child.

On May 27th, therefore, there were undoubted cases of diphtheria in five cottages ; but besides these I found suspicious cases of sore throat in five other cottages.

In nine out of eleven houses the first case occurred among children attending the school. In two other houses, children were attending the school, but were not the first attacked, but in both cottages a child attending school did have sore throat at a little later date.

From May 25th to June 1st no fresh cases occurred, but two or three other children had slight sore throats. On June 1st H. W. died, and on the 3d Emily P. ; it was then deemed advisable to close the school. This was done at my suggestion for a fortnight, and at the end of that period, as the pea-picking season had commenced, it was kept closed another week. After closing the school very few cases occurred. In fact, I did not find even a suspicious case in any house not previously infected. Disinfectants had been distributed freely, and a small hand-bill describing the precautions which were to be taken to prevent the spread of the disease left at every house. The deaths which had occurred had created a considerable amount of alarm, and made the people anxious to aid me in my efforts to stamp out the disease.

Of the suspicious cases of sore throat which occurred just prior to closing the school, two were in Bradwell village and three on the Waterside Road. All were children attending the school, and doubtless received the infection there.

Cause of the Outbreak.—From the isolated position of the village and its absolute immunity from diphtheria for a considerable number of years, it would appear at first sight an easy task to ascertain the cause of the outbreak. Such, however, has not proved to be the case.

It is tolerably certain that, at first, children attending school were almost exclusively affected, and also that nearly all the cases occurred in houses along the Waterside Road.

If the girl Bessie J. introduced the disease into the school, it remains to be ascertained how (*a*) she contracted the disease, and (*b*) why the children from one particular road should be infected, while probably not one of the children residing in the village was attacked. Certain results of my inquiries at the Marsh Farm, upon which Bessie J. lived, have already been recorded. The only other information obtained was that just before or after the time the girl complained of her throat a large heap of London manure, which had lain for some time in the farm-yard, was carted on to the farm. Unfortunately no one could give me the precise date when this filth was disturbed. As none of the other children living down there were affected, and the mother was positive that the child had only had a cold, and as there was no proof of the contrary, I came at the time to the conclusion that the girl had not had diphtheria, and therefore had nothing to do with the outbreak. The child had not been away from home, no visitors had been to the house, and there was no illness among domestic animals. The girl also had been kept from school directly she complained of feeling unwell, which was probably some days before the "cold" affected her throat.

On the Waterside Road complaints as to the offensive manure which had been carted along there were so general, that the probability of this filth being at the bottom of the mischief at once suggested itself. Further inquiry seemed to suggest the possibility of an infected milk being the cause, for the three houses in which the first undoubted case of diphtheria occurred received milk from the same source, the Queen's Head Inn

W.'s family purchased milk three times a week, and used it without previous boiling. C.'s family only bought milk once a week, on Saturdays, and then only to make a milk pudding. Mrs. W. also only purchased milk once a week, and then did not use it until after it had been boiled. It was rumored that a girl who occasionally helped at the inn was suffering from a sore throat, and suggested that she might in some way have infected the milk. The cow (only one is kept) seemed in perfect health, and the landlord assured me that this girl only went in to help them on rare occasions, and that when she did so she never had anything to do with the milk. The girl herself suffers from chronic enlargement of the tonsils, and that she did so was well known to me, because I had had some time ago to visit the house in which the family then resided on several occasions. It was overcrowded, but as the mother was a confirmed invalid and semi-imbecile, I recommended the Sanitary Authority not to take legal proceedings, and ultimately succeeded in getting the family to move into the larger cottage they now occupy. There were no reasons for supposing that this girl had had diphtheria, or that she had in any way affected the milk supplied from the Queen's Head.

Against the milk theory also was the fact that the three cases of diphtheria referred to occurred in families using very little milk, while the families with children using much milk were unaffected. Besides this, two other of the earliest infected families derived their milk supplies from different sources, the K.'s from Down Hall and P.'s from Bradwell Hall. Three other families never use fresh milk, always using the condensed milk sold in tins, and the remaining families rarely used milk of any kind, only occasionally purchasing halfpenny or pennyworths for special purposes. No one here retails milk: whether obtained from the Queen's Head or the farms, it is only obtained as a favor. That an infected milk supply was the cause of the outbreak may therefore be dismissed as in the highest degree improbable.

Before returning to discuss the possible relation between the London filth and the epidemic, I may say that in every house in which a case of sore throat had occurred, every effort was made to ascertain whether the sufferer had recently been away from home, or whether any visitor could have introduced

the disease, but the information was always of a negative character. There had been no fair at or near Bradwell, no meeting of any kind likely to attract strangers. If the disease were so introduced, I have not been able to ascertain how. I could hear of no illness affecting cats, dogs, or fowls, and have had no reason to suspect that such animals played any part in either causing or spreading the disease. Among the bargemen I could hear of no complaints of sore throats, and I am informed that very few boats come to the quay except such as belong to local owners and are manned by Bradwell men.

Among the families first attacked, C. only was a seaman. He is captain of a barge, but had not for some time had charge of any offensive cargo. His house also was a model of cleanliness. The coastguard cottages and surroundings were scrupulously neat and clean.

No ground had recently been opened out for purposes of sewerage or drainage. The ditch nuisance has already been referred to. Though probably worse at the time of my visit on account of the outlet being blocked, I cannot connect it in any way with the origin of the disease.

With the purely negative information gained up to this point, my attention was directed to the possibility of the London manure having introduced the disease, and, in the first instance, I was unfortunately misled by two curious coincidences. The mother of the lad W., whose death led to the discovery of the presence of diphtheria, assured me that some most offensive manure had been carted past the house a few days before the boy was taken ill. The officer in charge of the coastguard station gave me the following dates upon which barges had unloaded London manure at the wharf: April 10th, 11th, 16th, 17th, 24th, 26th, 30th, and May 14th. This latter date coincided exactly with that given by the woman whose child was taken ill on May 18th. I could not, however, find where this cargo had been carted to; none of the farmers had received any on or near that date. Ultimately the coastguard officer discovered that although a barge did come in on that day, the owner sold the manure to a farmer on the marshes, and the vessel went round to the east coast and the cargo was discharged directly on to the farm. It

therefore never came near the Waterside Road or the village. On the other hand, a cargo of fish manure was unloaded at the wharf on May 14th and carted along the Waterside Road. This manure consists of semi-putrid star-fish (five-fingers) chiefly, and is collected by the fishermen just outside the river and sold to the farmers. I am told that the odor is often stronger than that of London manure, if not so offensive.* No one has, however, suggested it to me as the cause of sickness, while every load of London manure which comes into the district causes some complaint. London manure was being continuously unloaded at the wharf from April 26th to 30th, and carted along the Waterside Road on to Delamere Farm. Most of it was at once spread on the land, but a portion was deposited near the farm-house and laid near the roadside for three or four days. During the carting a considerable amount was dropped on the road. This nuisance was mentioned by nearly every cottager on the roadside. The importer of this manure wrote me: "There was nothing in it different to what it is at other times. It was street sweepings and stable manure." Whether it contained any slaughter-house refuse or other similar animal filth I have been unable to ascertain.

The carts in traversing Waterside Road would pass most of the houses in which the first cases of sore throat occurred, and the children from three other of the houses would, in going to school, pass along a portion of the road traversed and also pass the manure heap at Delamere Farm. The girl Bessie J. only would appear to be without the sphere of its influence. On the other hand, I have no evidence of any children or of any person whatever complaining of a throat affection prior to May 14th, and it is doubtful whether any such occurred before the 18th, the date upon which W.'s and C.'s children were attacked. As these children would not pass Delamere Farm on their way to school, the last date upon which they would be exposed to the manure effluvium would be April 30th, which gives an incubation period of eighteen days. This exceeds so greatly the ordinary period of incubation,

* The importer writes me saying, "Five-fingers are very offensive, especially if the vessels have bad weather, as they jam up and look like human manure, and smell as bad."

that it is in the highest degree improbable that it should be so long in all the cases. Moreover, in other outbreaks in which I have had reason to suspect London manure as the cause, the earlier cases have occurred within a few days of exposure to the effluvium.

It is possible that slight cases of sore throat of a diphtheritic character were prevalent earlier in the month, and that from these the first recognized cases were infected ; but I inquired most carefully as to whether any children had complained of sore throat prior to May 14th, the day (I believed at the time my inquiries were being made) upon which the last cargo of London manure had been unloaded. As I found no cause to doubt the statements made to me that no cases were known before that date, and that sore throats became very prevalent on Waterside Road during the following week—that is, the week ending May 21st—whereas nothing of a suspicious character occurred in Bradwell village, I felt strongly inclined to the opinion that the carting of the London manure along Waterside Road on May 14th had some connection with the outbreak. Then came the discovery that the manure which was being carted that day was not London refuse, but a cargo of semi-putrid five-fingers. Specific pollution of the former was very possible, but of the latter exceedingly improbable. I do not regard specific infection from a pre-existing case as being necessary to cause an outbreak of diphtheria, though I believe that when once the disease has established itself it spreads almost exclusively by personal infection, the *materies morbi* most probably being in the expired air. Could the putrid fish manure have been the cause of the outbreak? Did the unloading of the cargo and the carting disseminate through the atmosphere around septic organisms which, being received upon the mucous membrane of the pharynx, produced in most cases no ill effect, in others but slight sore throat, and in still others the more serious symptoms of diphtheria, the difference being due to the condition of the mucous membrane upon which the germs were deposited and the general health of the patient, or more probably to other conditions of which as yet we are ignorant?

If not, what other explanation can we give of the origin of the outbreak? how explain the simultaneous appearance of

cases of sore throat, some of them undoubtedly diphtherial, on or about May 18th, and the peculiar distribution of these cases? Suppose that the girl Bessie J. had on May 13th (the day when last at school) a diphtherial throat, she might have infected several of the scholars, and by a curious chance these might all have been from the Waterside district, but this is very improbable. It does not also account for the first case which occurred at West Wick Farm, where the child attacked was one which did not attend the school, the one going to school not being infected until a week later. The way in which the school-children were affected is not indicative of the infection being spread by mere contact of the children, since nearly all occurred during one week, the attendance recovering the following week. The effect of school attendance was at no time very marked, and I did not think it desirable to give it the opportunity of becoming so, for I at once excluded every member of each family in which there was a case of sore throat, and a week later closed the schools entirely.

Taking into consideration all the facts which have come to my knowledge, I am inclined to think the outbreak was caused by the effluvium of the putrid fish unloaded at the wharf or landing-stage, and which was carted past all the houses first infected to Delamere Farm—*i.e.*, the farm to which the last load of London manure had been conveyed. Afterward undoubtedly a few cases were caused by the infection spreading among the children attending school.—*The Practitioner.*

THE ENGLE CREMATOR.

WE had the pleasure a few days since of visiting the Garfield Public School Building, Des Moines, and investigated the merits of the Engle cremator in use there. We first visited the water-closets on both sides. The covers of the seats were all open. We could not detect the least particle of odor to indicate we were in or near to such a place. In these closets there are four holes on each side for the boys and girls respectively—in addition to the urinals for the boys.

All the deposits of this building pass into the cremator, which is a horizontal furnace fourteen to sixteen feet long. The solid portions are caught upon iron grates with about one half inch opening spaces—the liquid portions percolate through into an evaporating pan underneath.

The capacity of the furnace is such that it is only necessary to fire up once a month. The average daily attendance at this building for the month preceding was 161+.

To burn this accumulation for the month just ended required two ordinary wheel-barrow loads of range (soft) coal and three hours' fire. During the burning, nor at any time, is there any complaint of foul odors.

The West Des Moines School Board has put this cremator into three of the public schools, and the superintendent, Professor Cooper, informs us that the practical operation of it where in use gives the greatest satisfaction. In Bird School Building, where the average daily attendance is greater, the contents are burned every two weeks, and he says there are no complaints whatever from the burning.

We believe this crematory, or one doing similar good service, should be in every State building and private or public school building in the State.

It is admirably adapted to hotels, court-houses, etc., and they have been put into several private houses in this city at trifling expense, and at immense satisfaction to their owners.

We believe the cremation of garbage and night-soil the only sensible and sanitary way of disposing of such refuse. It is not only the safest, but is the most economical. The correctness as well as the importance of this method of the disposal of garbage and of human and other animal excreta is rapidly being acknowledged, and we predict that the day is not far distant when our present barbaric and primitive methods will be exceptional and not general. For the last few years the question of cremation has only been one of practicability and not desirability. Now that the means of such disposal have been devised, the responsibility of their adoption rests with those whom the State has made the guardians of the public health.—*Monthly Bulletin, Iowa State Board of Health.*

PREDIGESTED FOODS.

THE problem of feeding the sick is often one of the most difficult the physician has to solve. Following Sir William Roberts's demonstrations of the value of pancreatic preparations in artificial digestion, great progress has been made, but there is still scope for further advance. Commercial enterprise has done much both to forward and to retard the movement, for while, on the one hand, manufacturers, possessing a scientific spirit, have endeavored to produce artificial foods which should not alone be profitable to them, but also of service to the sick, other manufacturers continue to place on the market, with high-sounding pretensions, preparations which no longer represent the best attainable results. In a recent paper before the Philadelphia County Medical Society, Professor Chittenden, of Yale, reported on the nutritive value of the best-known beef preparations in the market. Setting aside their value as stimulants, whatever that may be, he again conclusively demonstrated the practical worthlessness as nutritives of the group of "beef extracts," "beef juices," "liquid foods," etc., made after Liebig's formula, or consisting, as do some more modern preparations, of blood and alcohol. On the other hand, preparations which contain partially digested beef fibre, reduced to powder by desiccation, were shown to have considerable nutritive value, varying from 147 per cent in the case of beef peptonoids to 400 per cent in the case of Mosquera's beef-meal, estimating on a standard of 100 per cent for lean beef. Of course, laboratory analysis cannot replace clinical experience; but the two together will enable a just estimate to be made as to the field of usefulness of preparations of different types, and in assisting us to determine to which element in any preparations its particular usefulness is to be attributed. The preparation for ready assimilation without much further expenditure of energy by the patient, which is the characteristic of the peptone group of foods (using the term broadly), is unquestionably a great factor of their power for good.

Whether digestion by the pineapple ferment, as in Mosquera's beef-meal, will be equally efficacious with digestion by pancreas ferment, as in the older preparations, remains for

clinical experience to decide. There is *a priori* no reason to doubt its efficacy, and the reports thus far available seem to confirm it. Should it be established beyond question, the highly concentrated character of this food—400 per cent in Chittenden's table—will render it of especial value in wasting diseases, such as phthisis pulmonalis and diabetes, in which a nitrogenous dietary is strongly indicated. In carcinoma and for rectal feeding, in cases of gastric ulcer, for example, it will have a decided usefulness. In acute febrile conditions, associated with gastro-intestinal disturbances, on the other hand, the Liebig group of foods have a limited but none the less certain value in carrying the patient over a crisis in which absolute nutrition in the sense of repairing tissue-loss is of less moment than the liberation of energy in the nervous and circulatory apparatus. Like alcohol, caffeine, and strychnine, these foods contain principles which are available for such purposes, and are quickly taken up by the blood and brought into service. Their small nutritive percentage is in this case rather an advantage than otherwise.

It must be distinctly remembered, however, that we are not feeding the patient with these preparations, and that his tissues will be entirely consumed unless we repair them by other means. Thus in each individual case it becomes a matter of nice judgment to determine how long the patient may be allowed to go without food, or with a minimum of food, while his organic functions are maintained by his stores of reserve energy, assisted and guided by therapeutic administration of drugs, whey, fruit juices, and beef extracts. The food preparations may be advantageously combined at times with the stimulant preparations. Thus peptonized milk or peptonized beef, prepared at home, may be alternated with home-made beef-tea, or the two kinds of preparations be mixed and given together. A quite important point in cases requiring nice management is to give but small quantities of food, and to allow a sufficient interval to elapse between feeding times.

A patient given four ounces of food every hour will often vomit it all, when two ounces or less every second hour will be retained and utilized. While a return to the practice in vogue before Graves "fed fevers" would be unwise in the extreme, yet it is well to remember that even "fevers" may be "overfed."—*Therapeutic Gazette.*

MINERAL WATERS.

By A. N. BELL, A.M., M.D.

MINERAL waters have been used from time immemorial as medicinal agents, but always with exceedingly variable effects, even in the use of the same waters supposably, and for the same diseases. This irregularity of action is to be accounted for by reason of the instability of some of the most important qualities. For, although water is the most universal solvent in nature, its operations in this respect are on very different scales, chiefly depending upon its temperature and the amount and kind of gases and acids it holds in solution.

The solvent power of water, when heated under pressure to a temperature above 212° Fahrenheit, is greatly increased, insomuch that the late Dr. Turner found that pieces of glass enclosed in the upper part of a high-pressure steam-boiler, worked at 300° Fahr., at the expiration of four months were found completely corroded by the action of the water; that which remained was a mere white mass of silica, destitute of alkali, while stalactites of silicious matter, above an inch in length, depended from the little wire cage which enclosed the glass. This experiment aptly illustrates the conditions and the changes produced by the action of water confined at a high temperature in contact with various mineral substances in the interior of the earth.

Pressure also exercises a marked influence on the absorptive power (the solution) of water, of gases independent of temperature. And this condition, probably more than any other, is made use of to the detriment, or at least to the change of quality, of mineral waters in common use.

Gases are soluble in water in very unequal quantities of the different gases at different temperatures. For example, at 32° Fahr., one volume of water dissolves somewhat less than one twentieth of its volume of hydrogen and exactly one fiftieth of its volume of nitrogen, while it dissolves 506 and 1050 volumes, respectively, of hydrochloric acid and ammonia. And again, at the same temperature, 32°, it dissolves 1.8

times its volume of carbonic acid, while at 62° it dissolves only half as much. Ordinarily, the greater the pressure the greater the quantity of gas absorbed. One volume of water absorbs, at the temperatures stated in the following tables, under the pressure of 30 inches of mercury, the volumes of the different gases mentioned, measured at 0° C. and 30 inches pressure.

	Oxygen.	Nitrogen.	Hydrogen.	Nitrogen monoxide.	Carbon dioxide.
0°C.....	0.041	0.020	0.019	1.31	1.80
10°.....	0.033	0.016	0.019	0.92	1.18
20°.....	0.028	0.014	0.019	0.67	0.90

	Chlorine.	Hydrogen sulphide.	Sulphurous oxide.	Hydrochloric acid.	Ammonia.
0°C.....	....	4.37	53.9	505	1,180
10°.....	2.59	3.59	36.4	472	898
20°.....	2.16	2.91	27.3	441	680
30°.....	1.75	2.33	20.4	412	536
40°.....	1.37	1.86	15.6	387	444

Gases moderately soluble in water follow a chemical law (of Henry and Dalton) according to which the quantity of gas dissolved is proportional to the pressure. But gases which are exceedingly soluble in water, ammonia, and hydrochloric acid, for example, do not conform to this law ; these gases are soluble up to 800 or 1000 times their volume.

Salts generally are soluble proportional with the increase of temperature, but they deposit on the cooling of the water. There are some important exceptions, however, the most remarkable of which is that of common salt, which is about equally soluble at all temperatures. And a few there are—hydroxide and certain organic salts of calcium, for example—more freely soluble in cold water than in hot. And there are some salts so extremely soluble in water that they extract the vapor from the atmosphere and dissolve themselves in it.

Such are the conditions common to mineral waters as they obtain everywhere.

A dozen years ago the writer concurred with others in the statement that—

“ The material does not exist for a complete study of the

mineral waters of North America. Unfortunately, there are few places at which any restrictions are imposed upon either the manner or quantity in which the waters are consumed, or upon the mode of life, diet, etc., of those who are drinking them. In consequence the most erroneous ideas prevail; and it will not be until a definite system is adopted at each such health resort, and carried out under the supervision of competent resident physicians, that we shall secure information concerning the effects of our mineral waters as accurate and reliable as exist in regard to those of European countries. The indications for the use of the chief varieties of mineral waters are, however, so definite and well established that the possession of a classified list of reliable analyses will be of considerable practical importance, and will prepare the way for a more extended and rational employment of these powerful adjuvants." *

And here followed the largest enumeration and the most complete classification of the mineral waters of America compiled up to that time, comprising about five hundred mineral springs, classified according to the chemical composition of their waters as published.

Five years subsequently the writer again took up the subject,† but with greater particularity, with the purpose of designating those springs only whose waters had been found by repeated and perfectly reliable analyses to possess the properties attributed to them. But the interval supplied but little increase of knowledge, except the unreliability of a large proportion of the published analyses and alleged virtues of the waters, with the result of his being able to enumerate less than a tithe of the number investigated.

This uncertainty of the quality of the mineral waters of the United States is believed to be mainly due to too little attention to the volatile and other natural conditions by those who analyze them, and to the too great haste of their discoverers

* William Pepper, Henry I. Bowditch, A. N. Bell, Stanford E. Chaillé, Charles Dennison—Committee. Transactions American Medical Association, vol. xxxi. (1880), p. 538.

† "Climatology and Mineral Waters of the United States." By A. N. Bell, A.M., M.D., etc. William Wood & Co., New York, 1885.

to put them upon the market by bottling, divested, though the waters may be, of their most important properties.

Everybody knows that the most stable qualities of mineral waters are the easily ascertainable mineral substances taken up and held in solution from the geological strata from which the water springs or through which it has passed. But if the no less important volatile qualities, the temperature by means of which the mineral substances are held in solution, and the kind and quantity of gases contained in it as it springs to the surface, are ignored in the too great haste to put it upon the market, it is a very imperfect imitation. Indeed, it is upon the *continued* presence, approximately at least, of the same temperature, kind, and amount of gases by which the water is empowered to hold the mineral substances natural to it in solution, no less than upon the mineral substances themselves, that its true therapeutical properties depend. Hence the difference in the effects of mineral waters partaken of at their source and those designed to represent them, served in bottles.

Moreover, with reference to bottled waters particularly, in the effort of bottlers to replace the gases that begin to escape from the water at the springs, the moment it is relieved from pressure—which it is difficult, if not wholly impracticable, to duly estimate—it is frequently surcharged with carbonic acid to such a degree as to effect a change in its properties, inasmuch that alkaline waters at the springs are not infrequently acidulated waters in the hands of physicians and their patients, liable to wholly different effects from the remedy intended. Besides, there are many people, and some of them physicians, who are so little acquainted with the properties of mineral waters that they estimate their freshness and excellence according to the amount of carbonic acid they appear to contain on drawing the cork.

Clearly, the difficulties in the way of such a classification of the mineral waters of the United States as will indicate all their properties and chemical constituents render it impracticable.

The most that can be undertaken at present is to classify them according to their most reliably ascertained stable qualities under the conditions stated by analysts. And, in addi-

tion, for the advantage of those who believe that the benefits of natural mineral waters are obtainable only by the joint effects of all their chemical constituents and physical properties combined, to give these too, whenever practicable, as well as the physical geography of the region of the springs.—This information the writer will undertake to give in a series of articles to follow.

THE VALUE OF LITHIA WATERS.—It is one of the curious developments of modern medicine that remedies largely used by practitioners for years are suddenly shown to be lacking in the powers generally attributed to them. For years the profession has used lithia water in various diseases, with the idea that the results obtained were due to the comparatively small quantity of lithia present in solution. Those physicians who examined the subject closely speedily concluded that the greater part of the benefit derived by patients from so-called lithia waters depended rather on the large amount of pure water ingested than upon the lithia contained in it. In other words, the pure water practically flushed the body of impurities. These conclusions were still further supported by the discovery on analysis that one of the widely advertised lithia waters, indorsed by a large number of misguided persons, was only a pure water, with practically not a trace of lithia in it. Still more recently, Haig has told us that while lithia speedily combines with uric acid in a test-tube, in the body it has a greater affinity for the acid sodium phosphate in the blood, and combining with this leaves the uric acid untouched. Lithia waters should be used not for their lithia, but for their purity, and the results obtained placed to the credit of the flushing of the system, not to the lithia. A recent advertisement by one of the lithia water companies states that one of the editors of the *Therapeutic Gazette* strongly recommends lithia water, and not only this, but states that their particular brand is the best. The truth is that he has never employed their commodity, and has only recommended another brand of lithia water when *no other* pure water is obtainable.—*Therapeutic Gazette*.

THE MEDALS, JETONS, AND TOKENS ILLUSTRATIVE OF SANITATION. SUPPLEMENT III.

(Continued from page 56.)

By Dr. H. R. STORER, of Newport, R. I.

SECTION X. *Epidemics.*

1. *General.*

IN addition to the medals of Linnæus already mentioned, Nos. 1100-25, there is

1997. Obverse. A crowned cartouche, upon which a bust, facing, crowned. Inscription: Stockholm, Le XIII Mai MDCCCLXXXV

Reverse. Within a wreath of grain and fruit: Statue | Elevée À | Linné | Né À Rashult | Le 12 Mai 1707 | Mort À Upsal | Le 10 Janv. 1778 | — Exergue: A. Brichaut | Direxit Gilt, bronze. 32. 50 mm. In my collection.

2. *The Plague.*

THE NETHERLANDS.

1998. Obverse. Arms of Peter Justus Armsdorf, Burgo-master of Brussels.

Reverse. St. Michael and the demon. Inscription: DIVVs. MIChaeL. PatronVs.

This is like No. 749 (P. and R., No. 325, and Neumann, No. 35,004), save that the remainder of the legend, In.Peste., is absent. Neumann denied that the present piece exists. Copper. 17. 28 mm.

Numismatische Zeitung, 1844, p. 200. In my collection. Unmentioned by P. and R.

I am now enabled to give the description of No. 1922 (The Plague in Holland in 1598).

(No. 1922.) Obverse. Within a circle, three naked men beating upon the clouds with clubs. Legend: Cœlv'm· Stolidvs·Qvi·Territat·Armis· (rosette)

Reverse. Within a circle, the same men, killed by light-

ning. Above : a Hebrew inscription. Legend : Armis·Rvat·
Cœlestibvs·1598 (rosette). Bronze. 19. 31 mm. In my
collection. Unmentioned by P. and R.

FRANCE.—Nicolas Houel (1520–84), of Paris. Pharmacist.
“*Traite de la peste.*” 1573.

1999. A large medallion, at the Nouvelle École Supérieure
de Pharmacie in Paris. Dupuy, *Notices biographiques* (etc.),
Paris, 1881, p. 105, No. 35.

GERMANY.—Dr. Johann Crato von Kraftheim. In addition
to Nos. 719–24, there is

2000. Obverse. Within wreath of leaves, an elaborate
coat of arms. Inscription, upon a scroll : (rosette) Sigillvm·
Palatinatvs·—Joannis·Cratonis·A·Craft | heim·Doctoris·Medi-
ci·Cæsarei·(*sic*) Intimi

Reverse blank. Lead, bronzed. 36. 57 mm.

This very beautiful piece, his seal, is in my collection. It
was unknown to Moehsen, Rudolphi, Kluyskens, Duisburg,
and Rüppell.

Erfurt.

2001. A variety of No. 759 (P. and R., No. 282), the in-
scription being : A.D.1597.Als.E.Rud.Zig.V.E.Seb.Kra.R.
Duisburg Cat., 1869, No. 837. Unmentioned by P. and R.

Wittemberg.

The Pest-thaler struck by the Elector of Saxony in 1536,
and mentioned under the series relating to Moses, No. 1934.
Unmentioned by P. and R.

AUSTRIA. *Prague.* 1737.

2002. Obverse. View of the city. Devs In Domibvs
Eivs.

Reverse. A hand from heaven wrests the sword from a
demon. Svfficit Nvnc (etc.) Silver. Hess, *Verzeichniss*,
1890–91, No. 4602. Unmentioned by P. and R.

ITALY. *Milan.* In addition to the medals of St. Charles
Borromeo that have been given, there is the following :

2003. Obverse. Bust, unveiled, to left. S.Carolus Card. Borr.S.P. (etc.)

Reverse. Two angels and altar. Legend : Et Exaltavit Humiles. Bronze. Oval. 28x24. 45x38 mm. Corsi Cat., No. 2380.

3. Vaccination.

HOLLAND.

2004. Obverse. Head of the king, to right. Beneath : V(an).D(er).K(ellen). Inscription : Guilielmus III.—Rex. Nederl.M.D.L.

Reverse. Within branches of oak and laurel, tied by ribbon : Bene | Meret.De | Re.Pvblica. | Qvi | Valetvdinem | Civivm | Tvetvr. Bronze. 32. 50 mm.

Founded by royal decree in January, 1861, for gratuitous vaccination. Unmentioned by P. and R. In my collection.

BELGIUM.

2005. Obverse. The Arms of Limburg : a crowned shield, with a lion to left. To right, medical emblems ; to left, a cow's head. Inscription : Hertogdom Limburg Below : J.Et L.Wiener.

Reverse. Two branches of laurel. Field vacant for name of recipient. Inscription : Bevordering Der Koepok-Inenting 24. 38 mm.

Alvin, *Revue belge de numismatique*, 1883, p. 113, No. 1. Unmentioned by P. and R.

FRANCE.

2006. Obverse as reverse of No. 958 (Æsculapius, the Venus de Medicis, etc., MDCCCIV.)

Reverse. Laurel branches tied by ribbon. Bronze. 26. 41 mm. Duisburg Cat., No. 864. Unmentioned by P. and R.

2007. Obverse as that of No. 958.

Reverse. Within wreath : Ministere | De L'Interieur | —Societe Central | De Vaccine. Above : two laurel wreaths forming a wreath. Below : vacant space for name. 26. 40 mm. *Trésor de numismatique, Empire Français*, p. 94, pl. XLVII., No. 4. Unmentioned by P. and R.

2008. Obverse as No. 958.

Reverse as No. 961. 20. 32 mm. *Ibid.*, p. 67, pl. XXX., No. 1. Unmentioned by P. and R.

SWEDEN.

2009. Obverse. Bust, to right. Inscription : Carl XIV Johan Sveriges Norriges (etc.)

Reverse. For Befraincad Vaccination. Silver. 25. 39 mm. Corsi Cat., No. 4897. Unmentioned by P. and R.

ITALY.

2010. Obverse. Head to right. Inscription : Rex Victorius Emmanuel.

Reverse. A garland. Ob. Insitionem. Vaccinam Late Propagatam. Silver, bronze. 22. 35 mm. Struck about 1815. *Ibid.*, No. 1253. Unmentioned by P. and R.

Cholera.

HOLLAND.

Through the kindness of Mr. A. A. Looyen of The Hague, through Dr. J. J. B. Vermyne, of New Bedford, I am enabled to give the descriptions of two medals, Nos. 1013 and 1014, of which previously I knew but the existence.

National

(No. 1014.) Obverse. Æsculapius, erect, to left ; in right hand a chalice. In front, upon the ground, his staff. Beneath : J. Elion F. Inscription : Ob Cives Servatos

Reverse. A laurel wreath. Inscription : Voor Goede Zorg En Hulp By Het Heerschen Der Cholera Asiatica In 18— (rosette) Bronze. 37. 58 mm. Unmentioned by P. and R.

Groningen. 1867.

(No. 1013.) Obverse. Charity with the staff of Æsculapius in right hand, and in left the armorial shield of the city. At her side, three prostrated persons. VDK (Van Der Kellen.) Exergue : Senatus Groninganus D.D.

Reverse. A wreath of laurel and oak leaves. Inscription : Bene Meruit De Civitate Groningana Qui Sævente Cholera A° MDCCCLXVII Gold, silver, bronze. 38. 60 mm.

Conferred by the Town Council for special service. Unmentioned by P. and R.

BELGIUM.

2011. Obverse as reverse of No. 1015. Beneath a laurel wreath : Reconnaissance | Publique | —. — Inscription : Services Rendus Pendant Le Cholera *1832*

Reverse. A laurel wreath, with centre blank. Inscription : Actes De Courage Et De Devouement. 12. 20 mm. Guioth, *Hist. num. de la Belgique*, p. 143, pl. XIX., No. 153. Unmentioned by P. and R.

2012. Obverse. Head, to left. Below neck : J. Leclerq
Inscription : Leopold I Roi Des Belges

Reverse. In field, a medallion, for name of recipient. To left, an erect figure holding palm in right hand, and a wreath in left, raised. At her feet, a serpent drinking from cup. Behind, a pedestal, on which a lamp. To right another figure, seated, holds child in her lap, and with right hand crowns the medallion. At her feet a cornucopia. Inscription : Epidemies | Services Rendus Exergue : the Belgian arms, in front of laurel and palm branches. At sides : 18 — 48 Gold, silver, bronze. 27. 43 mm. *Ibid.*, p. 254, pl. XLI., No. 177 ; *Revue belge de numismatique*, 1853 (No. 27). Unmentioned by P. and R.

2013. Obverse as preceding.

Reverse also, save that in exergue, in place of the date there is : Julien — Leclerq Gold, silver, bronze. 27. 43 mm. Guioth, *Hist. num. de la Belgique*, p. 255, pl. XLI., No. 178 ; *Revue belge de numismatique*, 1853 (No. 28). Unmentioned by P. and R.

Brussels. 1849.

2014. Obverse. Head, to left. Beneath : Leopold Wiener
Inscription : Charles De Brouckere — Bourg^{tre} De Bruxelles

Reverse. Female with veil and mural crown, seated, to right, and lamenting. In right hand a wreath of amaranth. At side, a shield upon which St. Michael and the demon (in reference to Brouckere's suppression of the cholera). Inscription : Né À Bruxelles Le 18 Janvier 1796 — Mort À Bruxelles 20 Avril 1860 Exergue : Leopold Wiener Bronze. 43.

68 mm. In my collection. Unmentioned by P. and R. For the other cholera medal of De Brouckere, see No. 996.

(No. 1018.) Obverse. A female (Devotion) supporting upon her knees the head of a convalescent, who lifts his hands to her in gratitude. Behind : the city of Brussels, with mural crown, and St. Michael, who with one hand presents a palm leaf to Devotion, and with the other places one upon the altar of Hygieia, whose statue ornaments its base. Beneath : L. Wiener F.

Reverse. An oak wreath. Field vacant, for name of recipient. Inscription : La Ville De Bruxelles Au D vouement. | Chol ra 1849.

Alvin, *Revue belge de numismatique*, 1853 (No. 29).

I am at last enabled to give the description of this medal, through the kindness of Mr. A. de Witte of Brussels.

2015. Obverse. View of building. Inscription : Hotel De Ville De Bruxelles. Beneath : J. Wiener F. 1850.

Reverse. 1849-1850. Cholera. M sures De Salubrit  Publique. R compenses Pour Services Rendus Pendant L' pidemie. Inondations. Souscription Pour Les Inond s. (etc.). Nouvelle Systeme De Pavages Et D'Egouts. (etc.). *Revue belge de numismatique*, 1883, p. 75, No. 113. Unmentioned by P. and R.

2016. Obverse. View of Mint. 1867.

Reverse. Inauguration Des Travaux d'Assainissement De La Senne. (etc.) M sures Preventives Contre Le Cholera. (etc.). *Ibid.*, 1883, p. 85, No. 130. Unmentioned by P. and R.

Monceau.

2017. Obverse. A serpent twined around and drinking from a patera. Below : Rayt. Inscription : Epidemie 1848-1849.

Reverse. Between laurel and ivy branches : Au | Docteur | Thiry | Les Habitants | De | Monceau | Sur-Sambre | Reconnaissants 19. 30 mm. Guioth, *Hist. num. de la Belgique*, p. 256, pl. XLI., No. 228^{obis}. Unmentioned by P. and R.

Namur.

2018. Obverse. Charity, seated, holds in right hand a burning heart, and with left supports a nursing infant. Upon

her knees another child. Beneath : Lambert F Legend : Elle Offre Son Cœur Et Sa Vie Pour Secourir Ses Enfants*

Reverse. Within laurel wreath, with rosette above : Temoignage | De Reconnaissance Des Hab^s (habitants) De La Parois(s)e | De St. Nicholas De Namur | A Leur Rever^d Pasteur | M^r J. B. Van Deresse | Pour Son Devoue^t Et Les | Services Qu'il A Rendus | Pendant L'epidemie | Que A Desole La | Ville En | 1849 Gold, bronze. 35. 55 mm. Edges milled. Guioth, *Hist. num. de la Belgique*, p. 304, pl. LIV., No. 264 ; *Revue belge de numismatique*, 1853 (No. 9). Unmentioned by P. and R.

2019. Obverse. Bust, to left. Below : Lambert F Inscription : François Joseph Cornet

Reverse. Within field : A François Joseph Cornet, De Namur, Chevalier De L'ordre Leopold—Les Orphelins Reconnaissants 1851—Cholera De 1849 Inscription : Ob Patriam Et Cives. 57 Ans De Devouement Desinteressé 31. 50 mm. *Ibid.*, 1853 (No. 10). Unmentioned by P. and R.

There is another of Cornet, struck in 1835, after twenty years of philanthropic work. (Kluyskens Cat., p. 187, No. 79.)

FRANCE.

Dr. (Joseph) Paul Gaimard (1796–1858), of Paris.

(With Gerardin, Auguste) “ Du choléra-morbus en Russie, en Prusse, et en Autriche, pendant les années 1831 et 1832.” Paris, 1832, 8°.

2020. Obverse. Head.

Reverse. Monument. 1858. Silver. 31. 50 mm. Thieme, *Numismatische Verkehr*, July, 1892, No. 2931.

2021. Obverse. Head, to left. Beneath : Caque F. Inscription : Napoleon III—Empereur

Reverse. A wreath of flowers, grain, and fruit. Within : A M^r | Rollin | Élève En Méd^{ne} | Récompense | Cholera | 1854 (Not engraved.) Inscription : Ministère De L'Agriculture Du Commerce Et Des Travaux Publics* Silver. 20. 32 mm. In my collection. Unmentioned by P. and R.

There are five additional medalets of St. Roch.

2022. Obverse and reverse similar to No. 1027^b, save that the hand of St. Roch points between the U and S in Nous.

The piece is smaller. Brass. Oval. 10x11. 15x18 mm. Frossard, One Hundred and Twelfth Cat., July 21st, 22d, 1892, No. 339. Unmentioned by P. and R.

2023. Obverse. The saint, kneeling. Beneath : a cross. No inscription.

Reverse. + | St Roch | Preservez | Nous | Du Cholera | +
Brass. Oval. 11x12. 17x20 mm. *Ibid.* Unmentioned by P. and R. I am indebted for rubbings of these two pieces to Professor S. Oettinger, of New York.

2024. Obverse. Within circle, device as on obverse of No. 1027. Field crowded with fleurs-de-lys. Inscription : St Roch Preservez Nous Du Cholera

Reverse. Within circle, device as on reverse of No. 1027. Field filled with fleurs-de-lys. Inscription : St Hubert Priez Pour Nous. Bronze. Circular. 13. 21 mm. In my collection. Unmentioned by P. and R. See also Nos. 1026, 1027^a, ^b, and ^c, 1832, and the following :

2025. Obverse. A cross, over which I N R I, surrounded by mystic words and signs. Inscription : Signum: St Rochi: Contra: Pestem: Patronus: I.C.A.

Reverse. St. George and the dragon. Legend : Ora Pro Nobis Georgius. Lead.

Appel, Repertorium, etc., iv., 2, pl. VIII., No. 16; Duisburg Cat., No. 839. Unmentioned by P. and R.

2026. (St. Roch.) Dieu De Bonté Preservez Nous Du Cholera. Bronze. Schulman Cat., October, 1892, No. 1043^a. Unmentioned by P. and R.

ITALY.

2027. Obverse. Head, to right. La Patria Grata All, Abate Car. Pasquale Panvini.

Reverse. Pal Di Cui Zelo Coraggio Filantropia E Medico Sapere Fu Spento In Pochi Di Il Cholera (etc.) 1837. Bronze. 27. 44 mm. Corsi Cat., No. 5059. Unmentioned by P. and R.

Rome. 1837.

2028. Obverse. Jesus, standing. Inscription : Jesu Chr.Salvatori.

Reverse. Alumni Hospitii Apost. Virgines Et Pueri Cholera

Asiatico (etc.) 1837. Bronze. 22. 35 mm. *Ibid.*, No. 2150. Unmentioned by P. and R.

Frascati (Tusculum). 1856.

2029. Obverse. Two saints. Inscription : Sebastiano Et Rocho Patronis (etc.) S. P. Q. T. (Senatus Populusque Tusculanus.)

Reverse. In Memoriam (etc.) Quo Cœlestes Patroni Se Se Tusculanis (etc.) 1856. Bronze. 27. 43 mm. *Ibid.*, No. 2461. Unmentioned by P. and R.

PORTUGAL.

2030. Obverse. The arms of the city (Dos Olivaes-Elvas?). Inscription : A Camara Municipal Dos Olivaes | Ao Merito.

Cross-shaped decoration. Silver (the city arms in gold).

Fernandes, *Memoria das medalhas e condecoracoes Portuguezes*, Lisbon, 1861, p. 113, No. 126 ; also in *Memorias da Academia Real das sciencias de Lisboa*, iii., part 2, p. 109, No. 126.

In the collection of the Lisbon Royal Academy. Unmentioned by P. and R. Conferred for the epidemic of 1856.

5. *Yellow-fever.*

THE UNITED STATES.

Besides the medal of Stephen Girard, No. 1833, there is the following :

2031. Obverse. Monument of Girard. On its left side, incused : Lovett.

Reverse. Born At Bordeaux, France, 1746 | The Benefactor | —Of— | Philadelphia, | And The | Friend Of Orphans | Died Dec. 26, 1831. Silver, copper, brass. 19. 31 mm. Weyl, *Fonrobert Cat.*, N. A., No. 4492.

BRAZIL.

2032. City of Cartinas. 1889.

2033. City of Paranagua. 1889.

I have learned of these from Mr. Julius Meili of Zurich, but have not as yet obtained their description.

PORTUGAL.

2034. Obverse. A female with mural crown ; wreaths of laurel in her right hand, and her left supported by a shield with the arms of Lisbon (a ship, with two ravens upon the deck). Inscription : Lisboa Agradecida (grateful). Exergue : 1858.

Reverse. A crown of laurel, within which : A | Devacao | Humanitaria (for humane devotion). Silver. Fernandes, *loc. cit.*, p. 113, No. 127. Given by the Municipal Council of Lisbon. Unmentioned by P. and R.

6. *Typhus.*

Under this division was described the medal of William Alexander, which has been supposed, and so stated by Duisburg, to be of the physician of that name, who resided in Edinburgh and in London. This, however, I have discovered to be an error, the medal proving to be of a Dublin merchant.

Frazer, *loc. cit.*, i., p. 448.

7. *Erysipelas.*

2035. Obverse. Within inner circle, a blazing sun, with human features, surrounded by eight alchemical emblems in a central circle. Inscription : Dieser Taler Ist V(on) Denen 7 Mineralien Prepariert.

Reverse. Diese Mineralische U(nd) Mercurialische Materi Dient | Vor | Flüss Krampf (Dysuria, Rheumatism ?) | Und Rotlauff (Erysipelas) | Wan Er Bey | Den Menschen | Getragen Wirdt Below : Arms of Dr. Leonhard Thurneisser (1531-1596), of Basle. Composition, lead. 35. 48 mm. Moehsen, *loc. cit.*, ii., pl. II., fig. 3 ; Bolton, "Contributions of Alchemy to Numismatics," *American Journal of Numismatics*, July, 1890, p. 13, No. 41. This extremely rare medal is in my collection. Unmentioned by P. and R.

8. *Scarlet-fever.*

GERMANY.—Dr. S. C. F. Hahnemann.

In addition to Nos. 1130-35, there is

2036. Obverse. Head, to left. Behind : the name. Beneath : David | 1835 Bronze. 157 mm. Weyl, One Hundred and Twenty-second Cat., 1892, No. 53.

9. *Phthisis.*

Dr. Robert Koch (1843-), of Berlin.

2037. Obverse. Spectacled bust, facing and to right. Inscription : R:Koch. Medicus. Doctrina. Ac. Modestia. Aequè Excellens.

Reverse. An antique lamp. Beneath : Tuberculosis | Originem Indagavit | Invenit Sustulit | Gossleri Auspiciis | Annis | 1882-1890 Beneath : a transverse laurel branch. Beneath this : Lauer Bronze. 32. 50 mm. Edges beaded. In my collection.

2038. Obverse. Bust as in preceding. Inscription : Geheimrath Prof: Dr: Robert Koch

Reverse. Rod of Æsculapius, upright, within crossed laurel branches. Inscription : Dem Grossen Forscher Exergue : 1890 Bronze. 17. 27 mm. Edges milled. In my collection.

2039. Obverse. Bust as in preceding. Deitenbeck. 1890.

Reverse. Allegorical group of Dr. Koch and two other physicians, with Hygieia and a patient. 1890. Silver, bronze. 37. 58 mm. Thieme, *Numismatische Verkehr*, October, 1891, No. 2905 ; Weyl, One Hundred and Twenty-second Cat., 1892, No. 18.

2040. Obverse. Within beaded circle, bust, half turned to right. Below : a large laurel branch, its stem to right, tied with long ribbon. Inscription : (rosette) Professor Dr. Robert Koch (rosette)

Reverse. Within cabled circle, emblems : An open book, supporting a skull ; below, a diploma, with seals ; behind, a laurel branch, and the staff of Æsculapius surmounted by a patera, from which the serpent drinks. Beneath : W. M(eyer). Legend : Ut Sementem Feceris, Ita Medes | (three rosettes) Gilt, bronze, lead. 31. 49 mm. Edges of obverse cabled ; of reverse beaded. This very beautiful medal is in my collection.

2041. Obverse. Bust, half facing, and inscription.

Reverse. Inscription, and five lines within field. Without date. (Halle a/Saal.) Plated. 16. 27 mm. Weyl, One Hundred and Eighteenth Cat., January, 1892, No. 99.

2042. Obverse. Bust. By W. Meyer.

Reverse. Lamp and five lines of inscription. 31. 50 mm.
Thieme, *loc. cit.*, July, 1891, p. 149, No. 596.

10. *Venereal Diseases.*

ENGLAND.

Mr. Alexander Bruce (1842-69), of London.

"An Epitome of the Venereal Diseases." London, 1868, 8°.

Commemorative medal, founded by his mother, at University College, London. I have not yet obtained its description.

Dr. John Hunter, of London.

2043. Obverse from same die as that of No. 1143 (Leeds School of Medicine).

Reverse. Arms of the Yorkshire College; laurel branches connected by a band, on which: *Et Augebitur Scientia* (from Daniel 12: 4). Within: a shield, surmounted by a sphinx, to left (from an antique Greek cup). Upon shield: two roses (the white rose of York, "rose-en-soleil" of Edward IV.); chevron, on which the serpent of the house of Cavendish; and the Golden Fleece, from arms of the borough of Leeds. Inscription: *Collegium Comitatus Eboracensis—Schola Medicinæ*. Upon rim, name of recipient, engraved. Silver. 32. 50 mm.

Prize medal of the Yorkshire College (Medical Department), which in 1884 was combined with the Leeds School of Medicine. I have its description from the Dean, Dr. Thomas Scattergood.

2044. Obverse and reverse as preceding, save that on latter there are Allan Wyon, Sc., and roses after *Eboracensis* and *Medicinæ*. Bronze. 32. 50 mm. Catalogue of Medals of Royal Society of London, 1892, No. 38.

Dr. Sir William Lawrence (1783-1867), of London.
"Treatise on the Venereal Diseases of the Eye." London, 1830, 8°.

2045. Obverse. Head, to left. Beneath: A. B. Wyon. Inscription: *Gulielmus Lawrence, Baronettus*. Nat: 1783 Ob: 1867.

Reverse. Between two laurel branches, the hospital arms. J. S. & A. B. Wyon. Inscription, upon raised border: *S. Bar-*

tholomaei Hosp. Et Coll. Inst. 1123. Upon edge : name of recipient and date, engraved. Gold, bronze. 24. 38 mm. *Ibid.*, No. 40.

Conferred for excellence in medicine, surgery, and midwifery. Dr. Weber of St. Bartholomew's has favored me with its description. In the Fisher Collection.

FRANCE.

A fourth medal of Ambroise Paré will be described under Section XV., Hospitals.

11. *Contagious Ophthalmia.*

BELGIUM.

Dr. Florent Cunier (1813-53), of Brussels.

2046. Obverse. Within a cabled circle : Annales | D'Oculistique | Et De Gynécologie | Publiées Par | Florent Cunier | Et M. Schoenfeld. Inscription : Concours De 1838 1839

Reverse. Within an oak wreath bound with ribbon : A | J. H. | Beger | D.M. Et Ch. | A Dresde Inscription : 1^{er} Prix D'Oculistique. | Charleroi 1^{er} Juillet 1839 Gold. 23. 37 mm. Guioth, *Hist. num. de la Belgique*, p. 27, v. pl. IX.

The medal was founded by Dr. Mignel, editor of the *Annales*. See also No. 1187.

12. *Epizootics.*

FRANCE.

Louis Pasteur, of Paris. In addition to No. 1199, there is the following :

2047. Obverse. Bust, to right. Borrel. 1881.

Reverse. Inscription (in twelve lines). Bronze. 51 mm. Weyl, *One Hundred and Twenty-second Cat.*, 1892, No. 68.

Dr. Antoine Portal, of Paris. Besides Nos. 1844-46, there are :

2048. Obverse. As No. 1846, save a rosette after Paris.

Reverse as that, but without inscription and date. 28 mm. *Trésor de numismatique, Empire Français*, p. 94, pl. XLVII., No. 6.

2049. Obverse. Bust, to left. Inscription : Antonius Portal.

Reverse blank. Bronze. 140 mm. Kluyskens Cat., p. 73, No. 136^b.

Dr. François Rozier (1734-93), of Lyons, Veterinary Surgeon.

2050. Obverse. Bust, to left. Upon shoulder : Chavanne F. Beneath : Rozier. Inscription : Société D'Agriculture Hist^{re} Nat^{le} Et Arts Utiles De Lyon.

Reverse. A garland of leaves and fruit. Silver, bronze. 49 mm.

Duisburg, p. 58, cxlviii., 1.

2051. Obverse. Bust. At base incused : Rozier Beneath : Pillart F. 1821. Inscription : Société D'Agriculture, D'Histoire Naturelle Et Arts Utiles De Lyon.

Reverse. A plough amid sheaves. Exergue : Instituée En 1761. Bronze. 35 mm. *Ibid.*, p. 59, cxlviii., 3.

2052. Obverse. Bust. Beneath : Caqué F. 1834. Inscription : François Rozier Fondateur De La Société En 1761.

Reverse. Within a wreath of fruits and flowers : Société D'Agriculture D'Histoire Natu^{le} Et Arts Utiles De Lyon. Bronze. 35 mm. *Ibid.*, p. 59, cxlviii., 2.

Orleans.

2053. Obverse. Head, to right. Ludovicus XVIII Rex Christianissimus.

Reverse. An ox. Inscription : Abattoir D'Orleans. Bronze. Corsi Cat., No. 3892.

RUSSIA.

2054. Obverse. Head, to right. Below : II.Y. Inscription : Nicolaus I Russorum Imperator Et Autocrator

Reverse. Within laurel wreath : Ingenio Et Studio Schol. Veter. Dorpat. D. XXII. Jan. Beneath : M.K. Bronze. 32. 50 mm. Duisburg Cat., No. 875.

Prize medal of the Dorpat Veterinary College.

(To be continued.)

PETTENKOFER'S PERSONAL EXPERIMENTS WITH THE CHOLERA GERM.*

By JULIUS FRIEDENWALD, M.D., Demonstrator of Pathology, College of Physicians and Surgeons, Baltimore, Md.

SINCE the discovery of the cholera bacillus, which is a constant attendant in the fæces of all cholera patients, it is generally accepted that cholera is due to this organism alone. Pettenkofer, however, has maintained his local predisposition theory, even with regard to this disease. The etiology of cholera is regarded by him as an equation of three unknown quantities, x, y, z ; x represents the cholera bacillus; y , something dependent upon locality and time (local predisposition); and z , individual predisposition. Thus, it is quite as necessary to have a predisposed locality as a predisposed individual.

Regarding the human being as the only suitable medium upon whom indisputable and incontestable experiments concerning the causation of cholera can be performed, Pettenkofer experimented upon himself. After neutralizing his gastric juice, he drank, on October 7th, a pure bouillon culture of cholera bacilli which had been prepared for him from cultures sent from Hamburg. During the time following this he continued to partake of his usual food. His daily observations were as follows:

October 8th, one stool, normal.

“ 9th, two mushy stools; two watery stools, gurgling in the intestines.

October 10th, four very watery stools, colorless, continuous gurgling.

October 11th, two very watery stools, gurgling.

“ 12th, five very watery stools; temperature 36.7° C.; pulse 86.

October 13th, four, mostly watery, colored stools.

“ 14th, one normal stool.

“ 15th, two quite normal stools.

* Abstract of a letter from Berlin, *Maryland Medical Journal*, January 21, 1893.

From this time on Pettenkofer could not perceive anything abnormal.

On October 17th, Professor Emmerich, after neutralizing his gastric juice, partook of a similar bouillon culture of comma bacilli. His observations were :

October 17th, one normal stool, two mushy, and one very watery stool.

October 18th to 19th, three rice-water stools, each of 500 cc.; great thirst.

From October 19th, 6 A.M., to October 20th, evening, fifteen to twenty colorless, watery stools, each of 100 to 200 cc. In the evening of the 19th, 15 drops of tr. of opium were injected into the rectum, and following this, powders of opium and tannin were given.

From the night of October 19th to 20th he had eight, and from the 20th to 21st of October, twelve colorless, watery stools of from 100 to 200 cc.

On October 21st the first mushy stool was noticed.

From now on the stools were more consistent, and on October 24th the stools were consistent and well formed.

In the diarrhœic stools of both Pettenkofer and Emmerich cholera bacilli were found in abundant quantities.

From these two experiments made upon the human being, Pettenkofer draws the conclusion that the comma bacillus does not produce a specific poison in the intestine, which is the cause of cholera.

Although we must look enthusiastically upon these wonderful experiments in which Pettenkofer and his colleague offered their lives in the interest of science, we must agree with Fraenkel* that they prove quite the reverse of what was intended. Pettenkofer points ironically to the fact that Koch and his followers claim that he and Emmerich had really passed through an attack of cholera.

If we examine the cholera cases described by Guttman,†

* C. Fraenkel, *Deutsche Medizinische Wochenschrift*, No. 49.

† P. Guttman, *Berliner Klinische Wochenschrift*, No. 39. At a meeting of the Berlin Verein für Innere Medizin, December 12th, Guttman expressed the opinion that both Pettenkofer and Emmerich had passed through attacks of cholera.

in which the only marked symptoms were the diarrhœic stools, we must agree with Fraenkel that both Pettenkofer and Emmerich suffered from slight forms of the cholera. From experiments made by Fraenkel, it has been shown that cultures of cholera bacilli lose part of their virulence after a time. This, together with the fact that all persons are not equally susceptible to severe attacks of cholera, may explain why Pettenkofer and Emmerich did not suffer from a severe form of the disease.

Since Pettenkofer believes he has proved that the comma bacillus cannot be looked upon as the only cause of cholera, he tries to show what other factors are concerned in the question. He points out in a series of extensive statistics that time and local predisposition of the soil are the important factors in influencing an outbreak, that dryness and a low position of the soil water were present during the summer of 1892 in Hamburg; without these the comma bacillus could not have developed. It may be remarked that the same heat, dryness and low state of soil water were general throughout Germany during this period. Why did the Hamburg epidemic not become general in Germany. An important fact has been brought out by Wallichs*—viz., in certain long streets, half belonging to Hamburg and half to Altona, the epidemic was quite general on the Hamburg side, whereas but few cases occurred on the Altona side. As Wallichs points out, nothing but the difference in water supply can account for this fact. Pettenkofer speaks harshly of the many regulations taken during the past year for the prevention of the spread of the comma bacillus. Inasmuch as he admits that the comma bacillus is a factor in the causation of the disease, and inasmuch as we are somewhat helpless in the regulation of the local predisposition of the soil, we cannot see why Pettenkofer objects to measures which prevent the spread of comma bacillus. Certainly the wonderful results of the regulations which have been general throughout Germany during the past half year show how by proper precautions the spread of this dreadful disease may at least in part be prevented.

* Wallichs, *Deutsche Medizinische Wochenschrift*, No. 49.

STATE BOARDS OF CHARITIES.

SUGGESTIONS FOR THE CONSIDERATION OF STATE SUPERVISING AGENCIES.*

By WILLIAM P. LETCHWORTH, Chairman of the Committee on State Boards of Charities of the Nineteenth National Conference of Charities and Correction ; ex-President of the Eleventh National Conference of Charities and Correction ; Commissioner and ex-President of the New York State Board of Charities.

1. THE number of dependents under public care should be reduced to the minimum by refusing free support to the able-bodied, by enforcing the legal obligations of relatives, and by returning paupers to their places of legal settlement, where, by the aid of their friends, they frequently become self-supporting, and are saved from the enervating influences of poor-house residence.

2. The United States should return to the countries whence they came all paupers and criminals, and require from incoming foreigners a certificate from the American consul at the port from which they sailed, to the effect that the person to whom such certificate is granted is, in the judgment of the consul, self-supporting, non-criminal, and will prove a desirable citizen.

3. Private charities should be encouraged in their benevolent efforts, upon the principle that the dispensation of private charity is better than that of public charity. The recipient is benefited with less loss of self-respect, and society is made better by the sacrifice necessary to carry on benevolent work.

4. State boards should co-operate with and encourage charity organization societies in their attempts to prevent begging and expose imposture, to help the unfortunate to help themselves, and to stimulate pride of self-support, respect for honest labor, love of thrift, and otherwise diminish pauperism.

* Abstract of paper read at the Nineteenth National Conference of Charities and Correction, held at Denver, Col., June 23d-29th, 1892.

5. It is well to aid in the organization in each county of a society for the prevention of cruelty to children, and endeavor to secure laws for the better protection of neglected and abused children who, but for such protection, are sure to swell the ranks of the dependent and criminal classes.

6. An important part of the work of State boards is the improvement of poorhouses by planning buildings on advanced principles, securing a bountiful supply of water, good sewerage, and other sanitary essentials, also by providing special hospital accommodations with competent nurses for the sick, effecting a separation of the sexes, proper classification of the inmates, removing the children, and improving the administration of these institutions generally. The planning of better-constructed jails and improving their administration should also receive careful attention.

7. In providing sites for public charitable institutions, State boards should recommend that ample acreage, according to the objects of the institution, should be secured at the outset; that the buildings should be plain and inexpensive, and constructed in accordance with recognized sanitary and hygienic laws, with means to effect proper classification of the inmates and convenient and economic administration. The building of palatial edifices for the dependent classes, to gratify local and architectural pride, should be condemned, as the expenditure for such decreases legislative appropriations for needful charitable objects; and the consequence is that, while some are extravagantly provided for, many remain to suffer under very unsatisfactory conditions.

8. All adult inmates of institutions maintained at the public expense should, as an offset to their support and for their moral improvement and for better discipline, be employed at useful and remunerative labor to the extent of their ability as judged by a medical standard.

9. Boards should recommend that the supplies for State institutions be purchased at stated periods, after competition has been invited by public advertisement. Samples of the articles required, with prices, should, so far as practicable, be submitted for inspection, and agreements and purchases made in the best interest of the State and its beneficiaries, without reference to the interests of any particular locality.

10. Records should be kept in every public charitable and correctional institution, showing, as far as practicable, the mental and physical condition, habits, education, antecedent history, previous environment, and cause of dependency or criminality of each person under care. Such records are necessary as a basis for charity organization work, and are highly valuable in studying the causes of pauperism and crime and in determining the relation and extent of heredity to these conditions.

11. In rescuing dependent children, the aim should be to restore them as early as practicable to that God-ordained institution, the family. This may best be done through organized charitable societies and institutions directed by benevolent men and women, or by State agencies, where such exist. To children coming under public care, domestic and industrial training and kindergarten instruction should be given to the utmost extent practicable.

12. For better classification and for other reasons, children in juvenile reformatories should be cared for in cottages on the family plan. All should have the advantages of thorough industrial training; and the older ones should have the benefit of technologic training, or instruction in mechanic arts, as is well illustrated in the State Industrial School at Rochester, N. Y. Absolute separation should be maintained between the innocent and the guilty and between the pure and the morally depraved, by means of separate institutions.

Juvenile offenders should never be placed in jails either before or after trial. They should have a separate hearing before the court, and should be there represented by a State agent, whose duty it should be to protect the interests of the child during the trial and afterward, in the manner exemplified by the Michigan laws of 1873 and 1875.

13. The effort should be made to provide proper care and treatment for *all* the insane of a State, preferably by means of State care. The tendency should be firmly resisted to enlarge, beyond a moderate size, institutions in which the acute insane are treated. As numbers increase, the chronic insane should be colonized in cottage buildings containing not over forty patients each, situated on farms having not less than one acre to each insane person provided for. These colonies

should be widely separated from the parent institution, and under a subordinate but distinct administration. Whenever, by increase in the number of the acute insane, the curative functions of a hospital are weakened or an individualized system of treatment is rendered impracticable, a new institution should be projected.

It has been demonstrated in New York, Massachusetts, and elsewhere that the chronic insane can be humanely and very economically cared for, and the maximum percentage of cures reached in special inexpensive asylums, on large farms, under independent boards of management. In large mixed asylums the percentage of cures is not so great as the combined average of cures in separate hospitals for the acute and well-conducted asylums for the chronic insane. The dominant idea should be the cure of the insane in the acute period ; and our hospitals for this purpose should be small, and in every way constructed, supplied, and administered on the highest therapeutic principles. Expenditures here should be made a secondary consideration, with a view to securing real economy by curing the patient while there is the greatest possibility that he may be cured. We must boldly protest against the seemingly irresistible tendency to build up enormous mixed asylums out of what were originally designed for moderate-sized curative hospitals. Nor must we delude ourselves with the expectation that by simply changing the name of an institution from an asylum to a hospital we thereby alter its real character.

If, in the way indicated, the ever rapidly increasing burden of chronic insanity cannot be prevented from lessening a high standard of curative treatment in our hospitals for the insane, it is incumbent upon us to consider whether it would not be desirable to establish local asylums for the chronic insane, to be built by a single county or a number of counties uniting, the local authorities providing the buildings and the State paying for the support of the inmates on a standard of care approved by State authorities, the institutions to be managed, as are State asylums, by non-partisan, non-salaried boards of trustees, appointed by the governor or by justices of the Supreme Court.

Looking back to the time when our boards were first estab-

lished, or even to a later period, when these conferences were first formed, and to what has been accomplished since, we may fairly congratulate society on the dawn of a brighter and better era in the administration of public charity. Earnest men and women are to be found in every State working in the spirit of true philanthropy, seeking to heal, relieve, and elevate the unfortunate, to reduce the volume of pauperism and crime, and to see that the bounty of the people is prudently dispensed. In the performance of our work we have found that States have sometimes erred, not alone from neglect, but from ignorance ; and only by the severest and most expensive teachings have they been brought to observe the golden mean between foolish extravagance, on the one hand, and false economy on the other. Let us offer to these new empires rising in the West the benefit of our costly experience, and, hand in hand with them, seek to advance the highest interests of humanity and to attain a social condition in harmony with divine and natural laws.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

CHOLERA, in its clinical aspects in Paris in the epidemic of 1892. M. Galliard reports (*La France Médicale*) 397 cases of cholera which he treated during the epidemic ; the youngest patient was a baby of 11 months, the oldest a man of 80 years. Of the 397 cases, he had 50 per cent of cures ; but in taking only the severe cases there were only 33 per cent of recoveries.

M. Galliard proposes to classify the severe cases according to the rapidity of their development. He makes three principal classes :

1. The *form foudroyante*—that which proves fatal in twenty hours at most, but which may be prolonged and even cured occasionally by the intravenous injection of the serum of Hayem.

2. The *galloping form*—that which kills in five days at most, but which may be prolonged and sometimes cured. This gal-

loping form may be considered as the common form of the epidemic of 1892. What constitutes its specific difference from the preceding form is the fact that it yields to the influence of general therapeutic agents, and especially to transfusion. It allows time to act.

3. The *slow form*. This form may be divided into three varieties: (a) the gastro-intestinal, the only one that is curable; (b) the ataxo-adyynamic; (c) the marastic, always fatal.

In this slow form the duration may extend beyond three weeks; the end may come either in the peripheral algid conditions, with or without central hyperthermic reaction, or by congestion of the nerve centres, or by some complication, as pneumonia.

The efflorescence of cholera (papulous erythema) comes on generally on the tenth day. It has no prognostic significance. It coincides sometimes with the febrile stage of the tenth day—a condition which may be present without the exanthema in patients who recover.

The 397 cases of cholera observed by M. Galliard presented the following clinical peculiarities:

1. There was not one case of dry cholera.
2. The premonitory diarrhœa was often absent, especially in rapid cases.
3. As the greater number of patients were brought in during the stage of collapse, it was often impossible to recognize the succession of the periods generally regarded as clinical.
4. In the period of collapse there was remarked, besides the characteristic signs, a painful contraction of the scrotum. At this stage M. Galliard noted the temperature in the rectum to be very low—32 centigrade in one case, equal to 89.6° Fahrenheit.
5. Conditions resembling that of asphyxia were found toward the end in a great number of the patients.
6. An adynamic condition of the heart was always present.
7. Nervous phenomena were very frequent.
8. Congestive symptoms were found in many cases, but the lungs generally escaped, while the brain and meninges were severely attacked.
9. The reaction was not in accord with the symptoms generally described—that is, a febrile condition coming on spontaneously and without interruption after the cold stage.

10. The typhoid condition described by writers was never observed.

THE TREATMENT OF DIARRHŒA AND CHOLERA IN CHILDREN BY ELECTRICITY.—M. Ervant Arslan reports to the Société de Biologie (*Le Progrès Médical*, December 24th, 1892) that he has treated successfully at the children's clinic, in Padua, 15 patients having diarrhœa by applying the faradic current to the abdomen. He used the same treatment in five cases in Paris, in the service of Dr. J. Simon. None of these patients received any kind of medicine. He also treated with the faradic current three cholera patients in the Hospital des Enfants Malades. All three were speedily cured. The current should be sufficiently strong to produce distinct and visible contractions of the abdominal muscles. Both electrodes are applied to the abdomen, but their position should be frequently changed. The current should be continued from one to two minutes. It is always well borne. The application should be made when the patient is fasting—once every twenty-four hours, or twice if the case is a severe one, as in cholera. In general, after three or five applications the diarrhœa was completely checked, and the other symptoms, as fever, vomiting, loss of appetite, etc., were diminished at the same time. In the diarrhœa of dysentery and of ulcerative entero-colitis it has no influence. It is believed that its action on the nerves influencing secretion and on those determining the intestinal movements is reflex.

A MICROBE—FILARIA—IN THE ANTERIOR CHAMBER OF THE EYE.—A woman, 61 years of age, white, a seamstress of good constitution, consulted Dr. Lopez, of Havana, under the following conditions (*Revista de Ciencias Medicas*): She had, in the anterior chamber of the right eye, a parasite of white color, slender as a fine thread, and in length about 25 millimetres. The head, or larger extremity, was attached to the lower part of the iris, while the body, and especially the tail, moved actively in uniform undulations.

The patient stated that for about seven months she had trouble with her sight. In the beginning it seemed to her

like a fine thread moving in the field of vision. But for two months, following an inflammation of the eye, she saw only a cloud which obscured the object looked at.

After an application of atropine, a deposit of red pigment in form of a crown might be seen on the capsule of the crystalline lens, a certain consequence of a previous iritis. A synechia or contraction was observed at the lower border of the pupil. The interior of the eye was healthy, but vision was a little obscure; although the sight was impaired, she was able to read the paper.

The day following the first examination the head and a part of the body of the parasite were hidden behind the iris, and the movement of the tail was alone to be seen through the pupil.

Other applications of atropine were made, partly to break the adhesions and partly to facilitate the return of the filaria into the anterior chamber, from which situation it could be extracted by puncture. Unfortunately the atropine was sufficiently powerful to kill the parasite, and the patient then refused to submit to the operation. It was consequently impossible to subject the parasite to a microscopical examination in order to determine its species.

Under the name *filaria oculi humani* has been described a vermicular body, thirty millimetres in length, which is found in the vitreous humor; and another, half the size, which is found in the crystalline lens. In nearly all the observations that have been made these two species have not been differentiated by any distinctive characteristics. Some authors have confounded them with the *filaria spiralis*. It is admitted that there are three species of *filaria* to be found in the eye:

1. The *filaria medinensis*, which is found between the conjunctiva and the sclerotic coat. This nematoid inhabits ordinarily the subcutaneous cellular tissue, into which it is introduced through the skin. It may, in this location, attain a length of eight centimetres.

2. The *filaria oculi humani*, described by Quadri, which have been observed to move freely in the vitreous humor. Dr. Lopez thinks the one he observed belongs to this species.

3. The *filaria lentis*, described by Nordman, which occupies the crystalline lens. It is much smaller than the others, and is not more than three millimetres in length.

VACCINATION was the subject of a report presented to the Académie de Médecine recently (*La France Médicale*) by M. Hervieux. He described the condition of the Institut Vaccinal de l'Académie as steadily becoming more and more prosperous. In 1889, when the Institut was established and fully organized, they needed only one animal a week to supply the demand, and they sent out 5766 tubes of vaccine during the year. In 1890 they needed two a week, and were able to send out 14,811 tubes. In 1891 three a week were required, which supplied 20,325 tubes. In 1892, five animals a week, and at the end of September they had distributed 26,423 tubes.

Having fully described the obstacles which the indifference of the people oppose to the propagation of vaccine, M. Hervieux takes up the question of the organization of vaccine in France and in the colonies. The reforms to be effected should be directed to three points : the vaccine, the persons engaged, and the money needed for its successful propagation. These three points being described, the report terminated with the following conclusions :

1. The great utility of centres of vaccination being admitted, they should be encouraged in France and in the colonies.

2. To make the practice of vaccination successful in France, two classes of doctors should be employed, and also the midwives of the first and second-class ; in the colonies the doctors in the military and the civil service, and also the native practitioners and the more intelligent among the natives should be engaged as vaccinators.

3. The principle of gratuitous vaccination should be adopted ; but the departments and the communes should be obliged to remunerate the vaccinators according to the services rendered.

4. In the colonies prizes should be given in order to encourage not only the vaccinators and the vaccinated, but should be distributed to the cadis and the chiefs, who, by their influence, can encourage and extend the practice of vaccination among the people.

THE TREATMENT OF PULMONARY TUBERCULOSIS APART FROM CLIMATE.—The *Philadelphia Times and Register* of

January 6th contains an article by Dr. Karl von Ruck, of Asheville, N. C., entitled as above, in which the author considers the various remedial agents apart from climate, and urges their painstaking adoption both at climatic resorts and at places without the advantage of a favorable climate. He describes the treatment as carried out in the special institution, the Winyah Sanitarium at Asheville, N. C., under his charge, and believes the same method can be carried out in private practice, at least to a degree which would assure improvement and cure in a greater number of cases. In the treatment, the patient is first instructed as to the danger from his expectoration, and receives proper instruction as to its safe disposition. He is warned of the danger from physical and mental over-exertion, and is told that while exercise is essential and beneficial, it becomes indifferent, or a source of danger and a cause for relapses, when carried to a degree of sensible fatigue, or when it is taken so rapidly that it produces shortness of breath. Fever is treated by absolute rest, proper diet, and, if necessary, by stimulants and hydropathic applications. Drug antipyretics are entirely avoided. The diet for fever patients is light in high fever; solid food is entirely avoided; the feeding is frequent, and if patients lose flesh under the regimen, rectal feeding is resorted to in addition. Patients free from fever receive a generous mixed diet, well cooked, nicely served, to the avoidance of pastries and articles of food which in the particular case seem to disagree.

In dilatation of the stomach and severe gastric catarrh lavage and the use of electricity are recommended. Creosote is only given for its influence upon digestive derangements and the author says it has no specific effect upon the tubercular process, having demonstrated that the germs grow luxuriantly in blood serum from patients who are practically saturated by large and long-continued doses of creosote, and that the germs from their sputum will produce virulent cultures.

As a general tonic, and to prevent taking cold, every patient receives, before rising, a cold-water rub, with brisk friction thereafter; and in weak heart he uses strychnia in full doses.

Cough mixtures are never used; the general management being correct, there is no indication for them. Local pleurisy is treated by rest and counter-irritation.

Urine analysis should certainly be made in all cases where the disease has advanced to destructive changes, amyloid kidney being more frequently found than text-books indicate, and these cases are hopeless.

Bloody expectoration is treated by rest, and cough then moderated by codeine. Expectoration of clear blood and more decided hemorrhage occurred in less than one per cent in his private institution, and also much less frequently in his private practice, since he has learned to appreciate the detrimental effects of over-exertion. He distinguishes the form due to destructive changes and that which results from over-exertion—rest, diet, ice, ergot, morphia, strychnia, and astringent inhalations being considered the most useful.

The author still believes in tuberculin, although he was obliged to abandon its more general use in his institution, owing to prejudice both of the profession and of patients. He never saw any disagreeable effect; on the contrary, he witnessed most satisfactory improvement under its use as advised by him.

The pneumatic cabinet is used in a restricted sense, and good results as to better circulation and vital capacity have been observed.

Oxygen and ozone are frequently used in connection with feruginous preparations when anæmia does not yield to the climatic and other influences.

Plenty of out-door life is recommended both at home and at the resort.

The paper, being based upon a large experience, can be recommended for study to any physician who treats consumptives.

PHENACETINE, says Dr. John V. Shoemaker, of Philadelphia ("Materia-Medica, Pharmacology and Therapeutics," Vol. II.), was originally introduced into medical practice as an antipyretic, and subsequently was found to possess analgesic powers. In diseases attended by hyperæmia, such as rheumatism, pneumonia, typhoid-fever, and phthisis pulmonalis, phenacetine exerts a very happy effect in about half the dose of antipyrine, the ordinary dose being from 5 to 8 grains. The mortality of the typhoid-fever of children has been mate-

rially reduced by the employment of phenacetine. The fall of temperature does not occur until half an hour after the drug has been taken, and the effect continues from four to eight hours. As an antipyretic, phenacetine is considered by many good authorities as the safest and most efficient member of the aniline group. In epidemic influenza phenacetine rapidly relieves the muscular pains and favors diaphoresis; the catarrhal symptoms subsequently require other remedies. In ordinary colds, one or two 5-grain pills of phenacetine remove all symptoms. The combination of salol (or salophen) with phenacetine is especially useful in influenza and rheumatism.

The analgesic effects of phenacetine are very marked in various forms of headache, including migraine and the headaches from eye-strain, having the advantage over antipyrine in not so frequently causing a rash. In the neuralgic pains of tabes dorsalis, in herpes zoster, and intercostal neuralgia, 5-grain doses, given every hour for three or four hours, usually afford complete relief and cause sleep.

Phenacetine is extremely useful in chronic neuritis, and, according to Kater, is unsurpassed in the treatment of cerebral disorder due to excessive indulgence in alcoholic drinks.

In whooping-cough, $\frac{1}{2}$ -grain doses dissolved in 10 drops of glycerine are readily taken by children, and afford prompt relief, permitting sleep and ameliorating the attacks.


In delirium, a dose of 10 grains of phenacetine will usually afford a quiet night.

Mahnert considers phenacetine a specific in acute articular rheumatism, as it reduces fever, relieves pain, and lessens the duration of the attacks. It has been found useful in some cases of gonorrhœal rheumatism, and is worthy of more extended trial in this rebellious affection.

Given several hours before the time of the paroxysm of intermittent-fever, it prevents the chill.

In insomnia from simple exhaustion, phenacetine acts admirably.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

THE MARINE HOSPITAL SERVICE QUARANTINE BILL, as passed by the House of Representatives, virtually limits the national service to the same jurisdiction as that which was exercised by the National Board of Health, which it supplants. The amendment to the bill in the House provides that :

“ Nothing in this act contained shall be construed to authorize any federal officer to relax, modify, or suspend any rules, precautions, or regulations which may have been or which may hereafter be adopted by State or municipal authorities for the exclusion of contagious or infectious diseases from any part of the United States, or to permit the entry or discharge of any vessel in any port of the United States where quarantine regulations have been established by State or municipal authority, until such vessels shall have complied with such regulations.”

This provision should have the effect not only of stimulating the exertion of every port health officer who has a reputation to make or sustain with regard to the performance of his duties generally, but especially in view of the threatening attitude of cholera. That this disease may be prevented entrance by the ordinary highways of travel has been repeatedly demonstrated at the port of New York, and signally so at its two most recent attempts—in 1887 and 1892. True it is that, if the alarmists and iconoclasts were worthy of belief, the New York Quarantine is wholly untrustworthy—that cholera did elude it and prevail epidemically in New York last year. It was by the continuous repetition of these misrepresentations, and, greatest of all, that of holding the Health Officer of the port of New York responsible for the act of the Marine Hospital Service—the inordinate detention of infected ships with passengers on board—at increased danger to the public health and great detriment to commerce. It was on

account of this interference and these misrepresentations that New York was quarantined by several domestic ports and many foreign, at hundreds of thousands of dollars cost to merchants.

Under the Bill just passed by the House, if it becomes a law for the government of the Marine Hospital Service, and such improvements as are contemplated at the New York Quarantine by the State, we are fully persuaded that, so far as the port of New York is concerned, it merits the confidence of the public ; that, notwithstanding its greater liability to contend with cholera and other commercial diseases than all other seaports of the country besides, our confidence in its adaptations and appointments, as at present constituted and contemplated, is unabated.

Moreover, with practical knowledge of some of the small seaports of the United States liable to the introduction of infectious diseases, where there are no quarantine regulations except for detention, there is large scope for the exercise of practical measures by the Marine Hospital Service, as provided, in aid of the States concerned at such ports. Hence, with such co-operation as the law contemplates, and the practice of local sanitation everywhere requires, cholera may be and *should* be kept out of the country.

As related to *immigration*, attention is invited to Dr. Chancellor's article on other pages, and in particular to the map, page 112, enlarged from an illustration of "*Our Country*," by the Rev. Josiah Strong, D.D., and used by the kindly permission of the Baker & Taylor Co., New York, the publishers of that excellent book.

It shows the relative size of the United State, exclusive of Alaska, to other countries. Upon its territory space is found for the area of Great Britain and Ireland, Norway, Sweden, Denmark, Germany, Austria, Holland, Belgium, France, Spain, Portugal, Switzerland, Italy, Greece and European Turkey, together with China proper, Japan and Palestine. These countries have a population of nearly 650,000,000. Of the twenty-two States and Territories west of the Mississippi, only three are less in size than all New England. Massachusetts nestles in South Dakota, which could accommodate several more States of the same size, while Montana could contain nineteen such States, and Texas has room enough for

thirty-three. If Texas were as densely populated as England, it would contain 129,000,000 souls. Truly, as Dr. Chancellor so well says, if we can secure a desirable class of immigrants, the fear of cholera should not induce our Government to turn them away.

TO KEEP CROTON WATER PURE.—Mayor Gilroy expresses himself as very hopeful of a speedy passage of the bill introduced in the Legislature authorizing the city to acquire land adjacent to the streams in the Croton watershed, with a view to protecting them from pollution.

“While Commissioner of Public Works,” said the mayor, “I had surveys taken and maps made to be in readiness to acquire title to the land necessary to secure to our city water supply absolute exemption from defilement.

“As soon as the bill becomes a law I will be ready to carry its provisions into effect, and I hope to be able to complete the purchase of all danger spots before the summer is well advanced.

“There will be no delay in appointing the commissioners provided for by the bill, and I hope to begin the purchase of the land inside of two months.

“I shall try to abate every dangerous nuisance in the watershed before hot weather sets in, and by the end of the present year I hope the city will be in possession of all the land needed to permanently protect the water supply.

“In many places in the watershed public roads run along the banks of the streams for a considerable distance. This will save the city much money, as it will only be necessary in these places to acquire the strip between the road and the water.

“There is no way of estimating the cost of this permanent protection of the water supply, as we cannot tell until purchases actually begin what we will have to pay for the land.”

CREMATION.—Three years ago the Health Department of New York had a furnace constructed for the speedy destruction of infected articles, such as bedding, clothing, furniture, etc., which had been used by persons ill or dead with infectious and contagious diseases, the disposition of which mate-

rial had been heretofore expensive and dangerous. An Engle cremator of special design was built in the disinfecting station at the foot of East Sixteenth Street, which has continuously destroyed all these dangerous matters at a nominal cost, with no chance of escape of disease germs, and without odors or fumes of combustion ; it is also used for the destruction of waste from the adjoining Willard Parker Hospital.

The Beaumont Medical College Hospital, St. Louis, has had in use for over two years a smaller size cremator for the disposal of the organic waste from the medical school and adjoining hospital, with an economy of operation and entire freedom from offence which has met with the warmest endorsement of the medical staff.

The value of this speedy method of getting rid of infectible matter cannot be too highly stated. No city can be said to be perfectly protected against infection unless it has the means for instantly destroying, with no chance for dissemination of disease germs, all material which has been in contact with patients ill with typhoid, diphtheria, typhus, small-pox or cholera. Disinfection cannot be always relied upon, but combustion under conditions which positively destroys all sources of infection is an absolute protection. And never was the need of such means more imminent in every populous community throughout the country than at the present time. Filth constitutes the hot-bed of disease germs everywhere, and without it they never take root. The larger and the more thickly settled the community, the greater the danger in this regard. Yet, unfortunately, there are some cities whose authorities apparently consider the amount of surface filth and garbage too large for prompt destruction ! It must be allowed to accumulate, and then shifted from one place to another at the constant risk of the public health. New York and Brooklyn are examples. Instead of having cremators large enough and numerous enough to receive and reduce all such material to ashes on only one removal—from its first place of deposit to the cremator—it is scraped and piled, and not unfrequently hoarded for convenience to make people sick, loaded into scows, dumped into the bay, whence it is scattered along the shores to intercept and nourish disease germs for the benefit of curative medicine !

STABLE MANURE, in Brooklyn particularly—New York is much better in this respect—is still treated as if it were a salutary product. It doubtless is so to the germs of diphtheria, measles, scarlet-fever, and other diseases which in a great measure depend upon it. For particular evidence in this regard attention is invited to the paper on “Manure Nuisances and Diphtheria” on other pages. Yet here in Brooklyn stable-keepers are a privileged class; they are permitted not only to keep special boxes and vaults for the storage and putrefaction of manure within their premises, but many of them are indulged in the privilege of extending their vaults under the walls and providing openings on the outside, for convenience of delivery to carts across the pavements at stated periods, to the disgust and detriment of the neighborhood. Others still are privileged to have open areas for their basement-stable accumulation, extending all along the street sides of their premises. Into this the manure is raked and piled for convenience, covered by grating to prevent people from falling into the putrefying mass, but constantly evolving its mephitic gases.

These vaults and areas are never cleansed. The coarser material is shovelled out from time to time, but the flooring and sides, like the flooring of the stables, are usually of porous material, saturated with liquid filth, and at their best a common stench to all who live in or pass the vicinity.

LITERARY NOTICES AND NOTES.

FERMENTATION, INFECTION AND IMMUNITY. A new theory of these processes, which unifies their primary causation, and places the explanation of their phenomena in Chemistry, Biology, and the Dynamics of Molecular Physics. By J. W. MCGLAUGHLIN, M.D., Austin, Tex.

The special purpose of this book is to urge a new theory of immunity from infectious diseases. To that end, the process of fermentation is particularly described. The author gives a terse description and iconoclastic review of the four theories of immunity which other biologists of high repute have sub-

mitted, with the design of showing that none of them is satisfactory.

1. The exhaustion theory of Pasteur and Klebs, "that when infectious bacteria are introduced within the animal organism, they obtain the oxygen they require for respiratory purposes from the organic molecules of its fluids, and that the molecules which have been robbed of their oxygen fall to pieces, and their elements recombine into other substances—the toxics of disease," he believes to be deficient because some varieties of bacteria are strictly aerobic in habit—*i.e.*, they obtain the oxygen they require from the air, and cannot take it from organic molecules, consequently they cannot live when placed within the animal organism. In evidence he cites the bacilli of diphtheria and tetanus. But he fails to note that both diphtheria and tetanus are recurrent diseases.

2. The retention theory of Chauveau, "that the products of bacterial action are retained more or less permanently in the body of the previously infected animal." This the author believes to be unreasonable on physiological grounds. Regarding the products of bacteria as chemical substances of an alkaloid or albuminoid nature, he is "at a loss to understand how they can remain so persistently in the body when other similar substances are quickly eliminated from it." But the difference between similarity and identity in this instance, as will presently appear, is no greater than that between the results of fermentation and infection.

Similar in results to Chauveau's theory, the reviewer is reminded of a study he made of fungi—of the same great family of vegetable organisms as bacteria—more than thirty years ago.

"The fungi possess the curious property of destroying their own reproductive powers, or of poisoning against themselves the soil in which they grow. Persons who have travelled much over our Western prairie lands cannot have failed to observe curious denude circles amid the vivid green of rank vegetation. Such spots used to be attributed to the tiny feet of fairies. . . . Hence they were called fairy rings. But they are now known to be produced by the eccentric growth of various species of fungi; they may, therefore, be termed the vegetable ringworms of the fields. Commencing as animal

ringworms at a small point, they move progressively outward, leaving a bare, uninviting space behind them, upon which for a time neither other fungi nor grass will grow. Finally, however, grass returns, its seeds take root first at the centre, which part has been longest barren, and filling this up, follows the course of the fungi, so as to produce a broad circular belt of scorched earth which expands more and more in diameter. The fungi, evolved only on the outer edge of the belt, do not again attack the centre, in which the soil seems to have lost its power of sustaining them."*

That the tissues of the human body should remain invulnerable to a particular species of bacteria to which they have once become inured is surely no more remarkable than that soil which has once nourished a fungus, though subject to repeated washings and changes of temperature, should long afterward remain immune to it.

3. The phagocytic theory of Metschnikoff, "that the destruction of the life of the bacteria by being taken into the bodies of certain cells—phagocytes—is the exclusive means which the organism makes use of in resisting the incursions of pathogenic bacteria; an animal whose leucocytes can successfully battle with and eat up a given species of bacteria enjoys immunity from its deleterious effects." The author admits this function of the phagocytes to attack and destroy dead and inert substances, and adds, "Nor do we deny that leucocytes of an immune animal will attack and devour bacteria which are known to be pathogenic to susceptible animals; this fact has been established by Metschnikoff, by actual demonstration and by evidence of the most trustworthy nature. . . . It is not, then, the fact, but the interpretation by the advocates of the phagocytic theory to which we object. Our further contention is that this theory extends physiological leucocytosis beyond its normal limits; it endows leucocytes with qualities closely allied to if not identical with conscious action and memory, and it claims that these complex mental qualities can be acquired by leucocytes, and can be transmitted by them to their progeny through indefinite gen-

* *Knowledge of Living Things.* By A. N. Bell, A.M., M.D. Ballière Bros., 1860.

erations of these cells. It is these features of the Metschnikovian theory that we contend are unscientific, and unsupported by evidence or sound analogy." Notwithstanding, he admits that "the Metschnikovian theory would be invulnerable if the leucocytes invariably made war upon invading microbes, but unfortunately this is not the case. Leucocytes do not always rush upon invading bacteria; on the contrary, they as frequently rush the other way. Nor do they always protect the organism from infection by destroying the invading enemy; they as frequently retreat without even offering battle, and leave the road to infection wide open." But there is nothing in such objections as these in the least inconsistent with the nature and functions of the phagocytes. Like the bodies they inhabit, they are subject to greater or less functional activity, according to conditions. "In health," says Kirke ("Hand-Book of Physiology," vol. 1, p. 79), "the proportion of white to red corpuscles which, taking an average, is about 1 to 500 or 600, varies considerably, even in the course of the same day. The variations appear to depend chiefly on the amount and probably also on the kind of food taken, the number of leucocytes being very considerably increased by a meal, and diminished again on fasting." For like reasons, they vary in vigor, depending upon the state of the body they inhabit. And that they are not always in fighting condition or victorious in the combat is perfectly consistent with the antagonism of forces.

4. The humoral theory of Buchner and Behring, "that the cause of recovery from an attack of an infective disease is directly due to a bacteria-killing action of the serum, and that phagocytosis is brought about merely by the dead microbes giving up their proteins, which, acting chemically in a positive manner, draw the leucocytes to the point at which the organisms are breaking down, where the leucocytes take them up and ultimately digest and get rid of them, phagocytosis being merely the result, first, of chemotaxis, and, secondly, of an effort on the part of the organism to get rid of devitalized microbes." Extended quotations are given in support of this theory, with the apparent purpose of finally knocking them all down by the conclusion that "until it can be proven that 'defensive proteids' are always produced in the bodies of

previously infected animals, and that these protective substances are inherent in the bodies of those naturally immune, we are not warranted in believing that immunity is wholly due to anti-biotic or anti-toxic substances. Even then the humoral theory would lack that knowledge regarding how these substances are formed and how they induce immunity that is absolutely requisite to a scientific or philosophic explanation of phenomena."

5. The *physical theory*—the author's—is based upon molecular physics—the result of the motions of atoms and molecules. It claims to show that defensive proteids (anti-toxics, etc.) may occur as *side products of immunization*, and that this process requires two factors, the bacterium and the albuminoids, similar to that borne by ferment bacteria toward fermentable substances. But that, "while the formation of ferment products is the final act of fermentation, such is not the case in pathogenesis; the *rôle* of pathogenic products is not confined to their inhibitory action. They react, and cause a change in the albuminoid molecules of the body. This change is of two kinds, disruptive and reconstructive. But a disruption of albuminoid molecules which requires a coincidence in time and periods of the wave motions of the two substances is not the most frequent or important work performed by these products. That which results from their inhibitory influence furnishes the true cause of artificial immunity. The albuminoid molecules which are affected by this influence are those which are susceptible to the wave impacts of the causative bacteria. Both must vibrate in the same periods before the waves of the bacterium can disrupt the albuminoid molecules, consequently the resulting pathogenic products which antagonize the bacteria will, for the same reason, antagonize the set of albuminoid molecules which are vulnerable to the albuminoid waves. . . . This change does not destroy the nutritive value of the albuminoid substance nor its power of self-reproduction, but it does change its molecular vibration, and in this way renders it immune from that bacterium to which it had before been susceptible—that is, the animal is thereafter immune from the bacterium and the disease of which the bacterium is the cause, so long as the albuminoid molecules do not revert to their former structure.

"If attenuating agencies change the molecular structure of virulent bacteria and thereby weaken or, it may be, destroy their functional action without changing their mass appearance, their habits of growth and reproduction; that *if*, in fact, the molecular changes which attenuating causes impose on bacteria become a fixed habit of life, which is transmitted by them to their progeny for varying periods of time, then it is surely not improbable that albuminoid molecules of the organism, which are much less stable in molecular structure, may be similarly changed by dynamic influences without changing their mass appearance or nutritive qualities, and this changed structure may become a fixed habit of the albuminoid molecule, as it is of the bacterium, which can be transmitted from parent to progeny for varying periods of time. Duration of immunity would then correspond to that group arrangement imposed on the albuminoid molecules by the dynamic energy of bacterial products." (The italics are the reviewer's.) Yet "the ease and clearness with which the physical theory philosophically explains the phenomena of fermentation, infection, and immunity is certainly significant of its truth. . . . The physical theory places the immunity of the organism in the molecular structure of the albuminoids; when these produce waves that move in unison with those produced by a pathogenic bacterium they are susceptible albuminoids, and can be disrupted and converted into bacterial products—toxalbumins—by the microbe. But if the waves of albuminoid molecules do not move in unison with those of the pathogenic bacterium, then such albuminoids are immune from the microbe; it cannot shake apart and convert them into poisonous albumins."

LE CHAUFFAGE ET LES APPLICATIONS DE LA CHALEUR dans l'industrie et l'économie domestique, par Julien Lefèvre, professeur à l'École des Sciences de Nantes. 1 volume in-16 de 355 pages avec 188 figures, cartonné. (*Bibliothèque des connaissances utiles*) 4 fr. Librairie J. B. Baillière at fils 19, rue Hautefeuille (près du boulevard Saint-Germain), à Paris.

Ventilation and Warming are the primary subjects of this book, comprising a concise description of all the most approved systems in vogue, and their relative advantages to different

structures, elaborately illustrated. Next follows a description of the various methods of using heat for other economical purposes: in kitchens, for baths, conservatories, coaches, etc.; distillation of water—fresh water from sea water—of alcohol, pitch, oils, etc.; evaporation and desiccation; and its more recent use for the *destruction of microbes*; particularly in the use of steam as a disinfectant, with cuts showing apparatus for disinfecting stations, movable devices, and disinfecting stoves for emigrant ships. Crematories are also described and illustrated; and, finally, refrigerating machines and their use in making ice, preserving food, etc. Altogether, there are over two hundred illustrations, which, taken with the clearness of description, constitute a manual of extensive practical utility.

A MANUAL OF PRACTICE OF MEDICINE. By A. A. Stevens, A.M., M.D., Instructor of Physical Diagnosis in the University of Pennsylvania. Specially intended for students preparing for graduation and hospital examinations. 12mo, pp. 519. Illustrated. Price, \$2.50. Philadelphia: W. B. Saunders.

The object of this book is stated on the title-page.

The practice of medicine—it may be stated for the benefit of students—used to comprise *some* knowledge of all the specialties, but judged by this volume, the practice of medicine itself appears to have been relegated into a specialty of very narrow limits, insomuch that the practitioner's care of and for infectious diseases are wholly limited to the bedside—their liability to spread is no concern of his. Typhoid-fever is an exception. Under treatment of it, "the stools should be rendered innocuous," for which purpose brief directions are given. But the stools of cholera are of no consequence—not a word of caution, or how they should be disposed of. Diphtheria, measles, scarlet-fever, and whooping-cough are all disposed of by the administration of physic—disinfectants and their use are not mentioned. And with regard to yellow-fever, observers will be surprised to learn that "the colored race are more susceptible to it than the white!"

Altogether it is a dangerous example of hasty book-making, and discreditable to the authors named in the preface as sources of information.

THE "AMERICAN TEXT-BOOK OF SURGERY," edited by Professors Keen and White, of Philadelphia, which has only been issued a few months, is already a phenomenal success. It has been adopted as a "text-book" by forty-nine of our leading medical colleges and universities. Nearly five thousand copies have been placed in physicians' libraries, and every indication points to a sale of at least as many copies more in the next six months.

INTERNATIONAL MEDICAL ANNUAL FOR 1893.—E. B. Treat, publisher, New York, announces the eleventh yearly issue of this extremely useful work at an early day.

A glance at the prospectus gives promises that the 1893 issue will be better than any of its predecessors.

There are thirty-eight distinguished specialists on its corps of editors, carefully selected from among the most eminent physicians and surgeons of America, England, and the Continent.

It arranges in a practical way for ready reference what is worth preserving of the year's medical literature, together with a number of important papers specially written; and will contain over six thousand references to diseases and their remedies; many illustrations in black and colors being used where helpful in explaining the text.

The service rendered by this work, giving the year's progress in medicine and surgery so conveniently and at so low a price (\$2.75), cannot be overestimated.

Altogether it makes a most desirable, if not an absolutely necessary investment for the practitioner.

FISSURE OF THE ANUS AND FISTULA IN ANO. By Lewis H. Adler, Jr., M.D., Instructor in Diseases of the Rectum in the Philadelphia Polyclinic and College for Graduates in Medicine. 12mo, paper. Price, 25 cents. Detroit: George T. Davis.

A concise description of the two affections named, in respect to their etiology, symptomology, diagnosis, and treatment, exclusive of the general knowledge of fistulæ common to more elaborate works. The main object of the book seems to be to urge more attention to these—somewhat unattractive—dis-

eases, for the need of which they are often overlooked by physicians, as well as patients, as, "piles," and suffered to proceed as painful, chronic affections, which could be easily cured if more promptly taken in hand.

THE RUSSIAN KUMYS CURE.—Miss Isabel F. Hapgood contributes a paper to the January *Atlantic* on this subject, which comprises the following description of a Tatár beauty :

"At our establishment there were several Tatárs to milk the mares and make the kumys. The wife of one of them, a Tatár beauty, was the professional taster, who issued her orders like an autocrat on that delicate point. She never condescended to work, and it was our opinion that she ought to devote herself to dress, in her many leisure hours, instead of lounging about in ugly calico sacks and petticoats, as hideous as though they had originated in a backwoods farm in New England. She explained, however, that she was in a sort of mourning. Her husband was absent, and she could not make herself beautiful for any one until his return, which she was expecting every moment. She spent most of her time in gazing, from a balcony on the cliff, up the river, toward the bend backed by beautiful hills, to espy her husband on the steamer. As he did not come, we persuaded her, by arguments couched in silver speech, to adorn herself on the sly for us. Then she was afraid that the missing treasure might make his appearance too soon, and she made such undue haste that she faithlessly omitted the finishing touch—blackening her pretty teeth. I gathered from her remarks that something particularly awful would result should she be caught with those pearls obscured in the presence of any other man when her husband was not present ; but she may have been using a little diplomacy to soothe us. Though she was not a beauty in the ordinary sense of the Occident, she certainly was when dressed in her national garb, as I have found to be the case with the Russian peasant girls. Her loose sacque, of a medium but brilliant blue woollen material, fell low over a petticoat of the same terminating in a single flounce. Her long black hair was carefully braided, and fell from beneath an embroidered cap of crimson velvet with a rounded end which hung on one side in a coquettish way. Her neck was completely covered with a necklace which

descended to her waist like a breastplate, and consisted of gold coins, some of them very ancient and valuable, medals, red beads, and a variety of brilliant objects harmoniously combined. Her heavy gold bracelets had been made to order in Kazán after a pure Tatár model, and her soft-soled boots of rose-pink leather, with conventional designs in many-colored moroccas, sewed together with rainbow-hued silks, reached nearly to her knees. Her complexion was fresh and not very sallow, her nose rather less like a button than is usual; her high cheek-bones were well covered, and her small dark eyes made up by their brilliancy for the slight upward slant of their outer corners."

THE RAG-PICKERS OF PARIS.—The wealth of Paris is so boundless that the rubbish and refuse of the city are worth millions. There are more than fifty thousand persons who earn a living by picking up what others throw away. Twenty thousand women and children exist by sifting and sorting the gatherings of the pickers, who collect every day in the year about 1200 tons of merchandise, which they sell to the wholesale rag dealers for some 70,000 francs. At night you see men with baskets strapped on their backs, a lantern in one hand, and in the other a stick with an iron hook on the end. They walk along rapidly, their eyes fixed on the ground, over which the lantern flings a sheet of light, and whatever they find in the way of paper, rags, bones, grease, metal, etc., they stow away in their baskets. In the morning, in front of each house, you see men, women, and children sifting the dust-bins before they are emptied into the scavengers' carts. At various hours of the day you may remark isolated rag-pickers, who seem to work with less method than the others and with a more independent air. The night pickers are generally novices; men who, having been thrown out of work, are obliged to hunt for their living like the wild beasts. The morning pickers are experienced and regular workers, who pay for the privilege of sifting the dust-bins of a certain number of houses and of trading with the results. The rest, the majority, are the *coureurs*, the runners, who exercise their profession freely and without control, working when they please and loafing when they please. They are the philosophers and

adventurers of the profession, and their chief object is to enjoy life and meditate upon its problems.—*From "Proletarian Paris," by Theodore Child, in Harper's Magazine for January.*

BRUSSELS is described in *Harper's Weekly* as a showy, geometrically built city, with endless straight avenues, cubic perspectives, and well-ordered suburbs ; a young and laughing capital vulgarized by its imitation of every other capital, and which an immoderate love of stucco has led to the imitation of Paris in particular ; a modernized town laid out by rule, scraped clean with pumice-stone, deprived of all the bric-à-brac of its antiquities, rebuilt without any of its primitive originality ; a town which has sprung forth from the vitals of its ancient quarters with ready-made squares, symmetrical thoroughfares, straight streets, stucco and bastard-stucco buildings, five-storied houses, all the usual topographical peculiarities of Europeanism ; a town which has laid aside its ancient robes, crumbled to dust its antique plaster-work, pulverized its venerable relics, cleaned out its sewers, aerified its sinks, desquamated its ulcers, to make itself like other towns ; a town of palaces, barracks, academies, and official buildings, in which is concentrated all the machinery of government, and which is the very heart of the body-politic ; a town which, with its sparse population altogether insufficient to people its wide thoroughfares, and with its somewhat paralyzing condition of well-being, its ostentatious luxury and wealth, calls up a vision of another La Haye, a purring, self-satisfied, quiet, satiated, much-envied place ; a town which has retained its bourgeois character with all its pomp, a matter-of-fact, home-like, punctilious city ; a town inhabited by men of simple manners and moderate intellectual power, combined with a weakness for trivial amusements and military pomp and show ; yet, with it all, still remaining a very paradise to those who like to lead an easy, careless life.

THE AMERICAN GIRL.—This young compatriot of ours, says *Harper's Bazar*, no longer laces herself to breathlessness and a red nose and a pimpled forehead, pushing what flesh there is into regions where it makes deformity ; she wears corsets, but only to outline and partially support, never to

press or pinch, and thus her digestive organs are kept free to do their work and assist in preparing the rounded and velvety surfaces, the glow in the eye, the blush upon the cheek, the dye of the soft lips ; for, unpoetical as it appears, the laboratory of beauty is in the stomach. In addition to all this, the American girl is no longer ashamed of her foot. She used to think it a disgrace if she wore a larger shoe or boot than a No. $2\frac{1}{2}$; if she wore fours, she managed them ; if she wore fives, she hid her foot. Now she understands that it is a law of statuesque beauty that a body should have an extremity apparently equal to its support—a woman a foot big enough to stand on, and *bien chaussée, bien gentée*, she never dreams of lengthening her skirt because her shoe is a six or a seven, or of keeping her hands out of sight because they did not stop growing when she was ten years old. Owing to this last act of wisdom she can walk with freedom where she will, without pinched feet or any of the discomfort that urges her to sit still ; and thus she takes with delight the exercise which does so much for her, which fills her lungs with fresh air, and oxygenates her blood, and gives it all its life and sparkle wherever its effects are visible. After all, it is common-sense, the appreciation that nature says how much to eat and what to wear, that has reformed an ailing and early-withered woman into a beauty of the old Greek type.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076 : T. S. Scales, M. D., Health Officer, reports for the month of November a total mortality of 71, of which number 19 were under five years of age, and 27 were colored.

The annual death-rate was 27.36 per 1000. There were 14 deaths from zymotic diseases, and 12 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Mortality reports from 103 cities, towns, villages, and sanitary districts, having an aggregate population of 793,693, show 1087 deaths from all causes during November, 1892. This corresponds to a death-rate of 1.36 per 1000, or 16.32 per annum.

There were 172 deaths due to consumption, 87 to pneumonia, 31 to bronchitis, 15 to congestion of the lungs, 18 to diarrhœa and dysentery, 20 to cholera infantum, 59 to other diseases of the stomach and bowels, 47 to diphtheria and croup, 16 to scarlatina, 5 to whooping-cough, 36 to typhoid-fever, 2 to malarial fevers, 8 to cerebro-spinal-fever, 3 to erysipelas, 40 to cancer, 94 to diseases of the heart, 7 to alcoholism, and 427 to other causes.

San Francisco, 330,000 : J. W. Keeney, M.D., Health Officer, reports : The total number of deaths during the month of December was 565—130 under five years of age, and 30 among the Chinese. The annual death-rate per 1000 was 20.16. There were 60 deaths from zymotic diseases, and 85 from consumption.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, sums up the mortality reports for November from 168 towns in the State, as follows :

There were 1017 deaths during the month. This was 99 less than in October ; it was 75 less than in November, 1891, and 104 more than the average number of deaths in November for the five years preceding the present.

There were 205 deaths under five years of age. The death-rate was 15.6 for the large towns and 15.5 for the small towns, and 15.5 for the whole State. The deaths from zymotic diseases were 196, being 19.2 per cent of the total mortality against 21.5 per cent in October. The deaths from consumption numbered 120.

New Haven, 95,000 : F. W. Wright, M.D., reports for the month of November 131 deaths—41 under five years of age—representing an annual death-rate of 16.4 per 1000. Thirty deaths were from zymotic diseases, and 13 from consumption.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for three weeks ending December 31st, a mortality of 310, of which number 131 were of colored people, and 87 were under five years of age. The annual death-rate was 20.7 per 1000. There were 47 deaths from zymotic diseases, and 31 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Pensacola, 15,000 : R. W. Hargis, M.D., President, reports for the month of December 18 deaths, of which number 4 were under the age of five years. The annual death-rate was 14.4 per 1000. There were three deaths from zymotic diseases, and two from consumption.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,400,000 : John D. Ware, M.D., Commissioner, reports for the year 1891.

During the month of November there were reported 1804 deaths. Of this number 661 were under five years of age.

The annual death-rate represented was 15.46 per 1000. There were 400 deaths from zymotic diseases, of which 136 were from diphtheria, and there were 167 deaths due to consumption.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Evansville, 50,756 : L. Worsham, M.D., reports for December 65 deaths, of which number 25 were under five years of age.

Annual death-rate, 13.39 per 1000.

There were 12 deaths from zymotic diseases and 8 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for November as follows :

Burlington, 25,000 : Total deaths, 15. Annual death-rate per 1000, 7.88.

Council Bluffs, 35,000 : Total deaths, 16. Annual death-rate per 1000, 6.48.

Des Moines, 70,000 : Total deaths, 74. Annual death-rate per 1000, 16.8.

Dubuque, 35,000 : Total deaths, 20. Annual death-rate per 1000, 8.64.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored. There were reported for four weeks ending December 24th, 530 deaths, of which number 205 were among the colored people, and 138 of children under five years of age. There were 75 deaths due to zymotic diseases, and 68 to consumption. The annual death-rate was 27.22 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for December that there were 763 deaths, a decrease of 315, compared with the corresponding month of December, 1891. Of these 602 were whites and 161 colored ; a death-rate of 18.82 per 1000 for the former and 27.21 per 1000 for the latter. The death-rate per 1000 for the whole population was 20.12. Fifty-eight died from infectious diseases, 96 from consumption, 88 from pneumonia, 30 from bronchitis, 36 from diphtheria, and 13 from typhoid-fever. Two hundred and sixty-six, or 34.86 per cent of the total deaths, were in children under five years of age.

During the month 240 cases of infectious diseases were reported, a decrease of 46 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

The Seventy-third Annual Report, for the year ending September 30th, 1891, comprises :

1. Report to the Legislature on Water Supply and Sewerage, including the Advice of the Board, given under the Provisions of Chapter 375 of the Acts of 1888.

2. Reports upon Food and Drug Inspection.
3. Report upon Arsenic in Wall-Paper and Fabrics.
4. Summary of Weekly Mortality Reports.
5. Paper upon the Geographical Distribution of Certain Diseases in Massachusetts.
6. Health of Towns.

The new topics in the present Report on Water Supply and Sewerage are the "Amount of Dissolved Oxygen in Water of Ponds and Reservoirs at Different Depths," the "Effect of the Aeration of Natural Waters," the "Microscopical Examination of Water," and a paper upon a fresh-water organism known as "Uroglena." But the main part of the report under this head is devoted to the experimental work at the Lawrence Station upon the purification of sewage.

Food and drug inspection continues, as during the past ten years, to collect and examine samples of all questionable articles in this branch of preventive medicine.

Milk continues to require the most constant attention. The chief difficulty yet to be overcome is *filth*. While it is a comparatively easy matter to detect an excess of water or other fraudulent additions, there is no power to prevent the filthy stables in the country, which are a constant source of milk contamination far more dangerous than the addition of water. "The dwellers in the cities take such milk as comes, asking no questions. They have surrendered their primitive safeguards, and have placed none in their stead. By the present system of inspection we are protected from fraud, but not from filth and disease. Public milk supplies may not legally be watered, but *they may be stale or polluted or infected.*"

Glucose continues to play a conspicuous part as an adulterant in many articles of food, especially in the different sorts of syrups and honey.

Maple Syrup and Maple Sugar.—Of thirty-nine samples examined, eighteen were spurious.

Cream of Tartar.—Of two hundred and fourteen samples examined, twenty-four proved to be adulterated, only five of which were in marked packages. These were labelled "Finest Quality for Family Use," "Blanchard's Best," "Challenge Mill XXX.," "XXX. First Quality." The first, second, and fourth of these samples contained more than 75 per cent of

foreign matter. Several samples were found to be wholly composed of plaster of Paris, except a little tartaric acid to give them the slightly acid taste of cream of tartar.

Baking Powders.—Of fifteen samples examined, five only proved to be cream of tartar powders; one was chiefly coarse hominy, and nine contained alum as the acid salt. The following are the names of the ten fraudulent powders: "Home Circle," "Cottage," "Red Star," "Bon Bon," "Grape Crystal," "Cottage" (2), "Kitchen Queen," "Household," "Crystal," "Western Pearl."

Ground Coffee.—Thirty-eight samples examined, of which seven consisted wholly of burned peas and rye with chicory.

Mustard.—Of fifty-nine samples examined, nineteen contained wheat flour and rice; three of these were labelled, but not with the makers' names—"No. 1474, Gilt Edge;" "No. 1724, Durham;" "No. 8313, London." Some samples examined were found to be composed wholly of corn and wheat flour, colored and flavored to imitate the true powder.

Lard.—Of nineteen samples examined, six only were pure.

Olive Oil.—Of eleven samples, two only were genuine. Three samples consisted of cotton-seed oil, labelled: "No. 677, E. Loubyn, Nice;" "No. 1431, C. H. Carton, Nice;" "No. 2129, B. Dufour & Cie., Bordeaux."

Canned Goods.—Of fifty-four samples of *peas*, forty-five were more or less spurious or colored with injurious copper salts. Three samples of *beans* examined were all bad.

Drugs examined have been found adulterated in the ratio of 17 per cent. Among the number of samples examined, thirty-four were of empirical preparations, the greater number of which were *cosmetics* of a more or less poisonous and decidedly harmful character.

Arsenical Wall-Papers and Fabrics.—In all, 1018 samples have been collected in twenty cities and towns in different sections of the State. Of these, 629, or 61.8 per cent., were non-arsenical; 389, or 38.2 per cent., contained arsenic in appreciable quantities; or, referring to the past, according to analyses made in 1879, 1880, and 1881, the ratios were: Non-arsenical, 67.9 per cent.; arsenical, 32.1; 1889, 1890, and 1891: arsenical, 67.9; non-arsenical, 26.1.

Many of these papers sold to-day are highly arsenical, not-

withstanding the fact that their dangerous character has been repeatedly pointed out.

Arsenical Fabrics.—Of house furnishings, including cretonnes, mulls, plushes, corduroys, challies, carpets, etc., one hundred and ninety-nine out of three hundred samples examined contained arsenic—fifty of them above one tenth of a grain to the square yard. Of prints and gingham, two hundred and twenty-one out of three hundred and ninety-three samples examined contained arsenic, sixty-six of them above one tenth of a grain to the square yard.

Approximately, 60 per cent of the cotton fabrics were non-arsenical, while about 18 per cent contained more than one tenth of a grain of arsenic to the square yard—a very large proportion of the latter containing much more than this amount. . . . The most dangerous material met with was arsenical green (Paris green) *tarlatan*, which is still sold in the retail stores, notwithstanding the fact that attention has repeatedly been called to its poisonous character. . . . Another very arsenical material, for which there appears to be a considerable demand, is a *red-striped ticking*, used for mattresses; of six samples of this obtained from different furniture dealers, five proved to contain a very large percentage of arsenic.

Of morbidity and mortality reports, excepting influenza, there was no widespread epidemic.

Small-pox created but little disturbance. But considering its frequent relation to old rags, and the painstaking common to paper-mills to show that there is no danger from this source, the scrutiny of the Board in this respect is always interesting. Under another head, the Secretary reports that frequent investigations of the State Board of Health have shown that small-pox in Massachusetts is very often due to infected rags. Out of the first 12 cases of small-pox which occurred in Holyoke in 1880, 11 were females employed in cutting and sorting rags, and the twelfth was a child in the family of a rag-cutter. Investigation in many of these cases showed that the probability as to the source of infection was largely in favor of domestic rags collected in the large cities of the United States. Further information upon this point is contained in Dr. Withington's

article upon "The Transmission of Infectious Diseases through the Medium of Rags," in the eighteenth report of the State Board of Health (1886).

There were five cases only reported during the year 1891, as follows :

Number.	Place of Occurrence.	Date of Report.	Nationality of Patient.	Age.	Sex.	Deaths.	Occupation.	Previously Vaccinated.	Number of Scars.
1	Spencer...	January 17	United States.	30	F.	..	House-wife.	No..	0
2*	Holyoke..	April 18 ..	Irish.....	19	F.	..	Paper-mill operative..	Yes.	1
3*	Lenox....	July.....	Canadian.....	3	..	1	} Father a shoemaker	No..	0
4*	Pittsfield..	July 17....	Canadian.....	4	F.	..		No..	0
5	Lenox....	July.....	.....	..	M.	..	.....	.....	..

While the number of cases occurring in the State in 1891 was much less than that of the preceding year, the number reported throughout the country—68—was considerably larger, although there was no serious epidemic, except in the Province of Quebec, where there were 150 cases with 31 deaths.

Typhoid-fever's intimate connection with sewage-polluted water supplies has made it a subject of special observation and experiment, to be reported upon hereafter. But, as an interesting study meanwhile, a tabulated statement is given of deaths from this disease in Massachusetts during the twenty years 1871-90, together with the average annual death-rate per 10,000 in each city, aggregating 11,179 deaths and an average annual death-rate in 28 cities of 5.37 per 10,000 inhabitants. The total number of deaths from this disease in 1891 was 449.

Consumption caused 2877 deaths. The ratio, as compared with the reported mortality from all causes, was 116.5, while that of previous years was, in 1886, 156.5 ; 1887, 141.1 ; 1888, 134.2 ; 1889, 125 ; and 1890, 130. The ratio to the reporting population was 2.42, as compared with 2.78 in 1890.

Acute lung diseases caused 3205 deaths. The ratio of deaths from these causes—believed to be heightened by the influenza

* No. 2 was employed as a rag-cutter in paper-mill, vaccinated in infancy. Nos. 3 and 4 were the children of a shoemaker, who moved from Lenox to Pittsfield after the illness of No. 3.

epidemic—to the total mortality was 129.8 per 1000. In 1890, 130.8 ; 1889, 106.

Total number of deaths from all causes reported for 1891, 24,687 ; 20.5 per 1000 of population, 1,200,000 ; deaths under five, 8771.

The Geographical Distribution of Certain Causes of Death in Massachusetts is a demographic study of eight diseases—measles, scarlet-fever, diphtheria and croup (considered together), small-pox, typhoid-fever, cholera infantum, phthisis, and pneumonia.—commonly recognized as infectious, and preventable in a greater or less degree. The death-rate from each is presented for twenty years, 1871-90. Next the death-rates by counties. Density of population is considered, and finally the entire list of cities and towns with the general death-rate per 1000 of the population of the State, and the death-rate from each disease for the twenty years. For convenience of comparison, the mortality of each disease in the State is taken as a standard of comparison, and is assumed to be 100. Other special conditions are considered, such as the influence of railway communications ; the relation of paper-mills to small-pox mortality ; of employment of married women away from home to the death-rate from cholera infantum ; of elevation above sea-level and distance from the sea to the death-rate from phthisis and pneumonia. The sources of information are mainly the registration reports of the State, for which allowance is suggested because all medical statistics based upon the returns of causes of death are only as trustworthy as medical diagnosis can make them. Notwithstanding, all the conditions are admirably summed up. The paper throughout is deeply interesting, of much practical utility.

The Health of Towns is a condensed digest of the reports of local boards of health for the year, comprising local conditions, sanitary regulations, the number of cases of infectious diseases, mortality, and needful sanitary measures.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. There were 895 deaths reported in November, of which number 260 were under five years of age. The annual death-rate per 1000 was 22.86. There were 140 deaths from zymotic diseases and 125 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of December, 1892, compared with the preceding month, the reports indicate that measles, influenza, diphtheria, pneumonia, and membranous croup increased, and that cerebro-spinal meningitis, dysentery, typho-malarial-fever, and cholera morbus decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was southwest (instead of northwest), the velocity was greater, the temperature was lower, the rainfall at Lansing was one inch less, the absolute humidity was less, the relative humidity was more, the day and the night ozone were much more, and the height of the ground above the water in the well at Lansing was one inch more.

Compared with the average for the month of December in the six years 1886-91, scarlet-fever was more prevalent, and small-pox, cerebro-spinal meningitis, inflammation of brain, remittent-fever, intermittent-fever, measles, erysipelas, inflammation of bowels, cholera infantum, consumption, typho-malarial-fever, inflammation of kidneys, membranous croup, dysentery, pneumonia, and puerperal-fever were less prevalent in December, 1892.

For the month of December, 1892, compared with the average for corresponding months in the six years 1886-91, the prevailing direction of the wind was the same (southwest), the velocity was less, the temperature was lower, the rainfall at Lansing was .11 of an inch less, the absolute humidity was less, the relative humidity was more, the day and the night ozone were less, and the height of ground above the water in the well at Lansing was four inches more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of December, 1892, at one hundred and eight places; scarlet-fever, one hundred and four; typhoid-fever, fifty-five; and measles at seventeen places.

Reports from all sources show diphtheria reported at fifteen places more; scarlet-fever at nine places more; typhoid-fever at forty places less, and measles at two places less in the month of December, 1892, than in the preceding month.

Detroit, 230,000: S. P. Duffield, M.D., Health Officer, reports for the month of November 318 deaths, of which number 67 were under five years of age. The annual death-rate

was 16.82 per 1000. The deaths from zymotic diseases numbered 68, and from consumption, 23.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing. *Minneapolis*, 209,000 : E. S. Kelley, M.D., Commissioner, reports for the month of December 162 deaths, of which 52 were under five years of age. The annual death-rate was 7.75. From zymotic diseases there were 32 deaths, and from consumption, 20.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis. *Kansas City*, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent, reports that there were 126 deaths during the month of November, of which number 36 were under five years of age. Annual death-rate per 1000, 11.3. Zymotic diseases caused 23 deaths, and consumption, 7.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton. *Hudson County*, 292,574 : C. J. Rooney, Jr., Clerk, reports for the month of November a mortality of 445, of which number 162 were under five years of age. The annual death-rate per 1000 was 18.2. There were 83 deaths from zymotic diseases, and 40 from consumption.

Paterson, 85,386 : J. L. Leal, M.D., reports for November 112 deaths, of which number 34 were under five years of age. The annual death-rate was 15.6. There were 22 deaths from zymotic diseases, and 15 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows :

There was an average daily death-rate during November of 281, which is the lowest of any month of the year, the aver-

age daily mortality for the twelve months preceding being 350. There were 300 fewer deaths than in November of last year. This is uniformly the healthiest month of the year in this State, showing an average daily mortality less by 25 than the daily average for the past seven years. Compared with last November, the infant mortality as well as the zymotic mortality are a little higher. Typhoid-fever caused 184 deaths, which is less than in November, 1891, and less than in October, 1892; malarial diseases likewise caused fewer deaths, and scarlet-fever caused fewer deaths than in 1891, but shows an increase over October; the same is true of measles. Whooping-cough is more prevalent than a year ago. Diphtheria, on the other hand, has caused 700 deaths, which is about 150 more than in either November, 1891, or October, 1892. Its prevalence continues at Geneva, Gaines, Port Henry, Catskill, and Jamestown, and limited outbreaks are reported from numerous new localities. The late fall and the winter months are those in which this disease is usually attended with greatest fatality. Small-pox caused 1 death in Jamesport, Suffolk County, and 10 in the Kings County Hospital for Contagious Diseases; a case is reported in Beekmantown, Clinton County, originating in New York, and is the only case outside of the maritime district. From acute respiratory diseases there is an increase over last month of 300 deaths, but deaths are fewer than in the corresponding month of last year. All other local diseases, as well as consumption, caused fewer deaths than in October and than in November, 1891, and there is no evidence of the fatal prevalence of epidemic influenza, although for the past two months a number of deaths attributed to this cause have been returned. If prevalent, as there is reason to believe, its lack of fatal severity is in marked contrast to that of the three epidemics occurring since December, 1889.

New York, 1,801,739: Total deaths, 2927—974 under five years. Death-rate, 19.75. Zymotic diseases per 1000 deaths from all causes, 147.93. Deaths from consumption, 364.

Typhus-Fever.—There were 12 cases in the Riverside Hospital December 25th, since which time, to January 7th, there have been admitted 82 cases. Of this number 16 have died and none have been discharged.

Brooklyn, 957,163 : Total deaths, 1354—582 under five years. Death-rate, 19.75. Zymotic diseases per 1000 deaths from all causes, 139.03. Deaths from consumption, 151.

Albany, 97,120 : Total deaths, 195—46 under five years. Death-rate, 23.98. Zymotic diseases per 1000 deaths from all causes, 201.15. From consumption, 24.

Syracuse, 91,944 : Total deaths, 111—33 under five years. Death-rate, 14.45. Zymotic diseases per 1000 deaths from all causes, 198.20. From consumption, 9.

Buffalo, 278,796 : Total deaths, 393—159 under five years. Death-rate, 20.13. Zymotic diseases per 1000 deaths from all causes, 185.75. From consumption, 36.

Rochester, 144, 834 : Total deaths, 235—74 under five years. Death-rate, 19.47. Zymotic diseases per 1000 deaths from all causes, 320.00. From consumption, 20.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of November 139 deaths in twenty-three towns aggregating 117,614 inhabitants. The annual death-rate was 14.2 per 1000.

Typhoid-fever caused 10 deaths ; diarrhœal diseases, 6 ; heart diseases, 10 ; brain diseases, 10 ; malarial-fever, 2 ; and consumption, 24.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Cincinnati, 305,000 : J. W. Prendergast, M.D., Health Officer, reports for the month of December 525 deaths, of which number 153 were under five years of age. The annual death-rate was 20.6 per 1000. There were 74 deaths from zymotic diseases, and 41 from consumption.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer, reports :

In the four weeks ending December 31st, 1892, there were 1830 deaths, of which number 635 were under five years of age. Annual death-rate, 21.9 per 1000. Deaths from consumption numbered 214. Of 277 deaths from zymotic diseases, 168 were from diphtheria.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the week ending December 31st, 1892, there were 98 deaths, of which 37 were under five years of age. Annual death-rate, 19.90 per 1000. Zymotic diseases caused 21 deaths, and consumption, 9.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of November :

The number of deaths recorded in the different towns and cities, from which returns have been received, was 438, in an estimated population of 314,321. The annual death-rate upon the estimate given is 16.7 in every 1000 of the population.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of November were : Malarial-fever, typhoid-fever, consumption, diphtheria, scarlet-fever, catarrh, dysentery, pneumonia, bronchitis, croup, and tonsillitis. Diphtheria was reported in the counties of Davidson, Gibson, Hamilton, Knox, McNairy, Montgomery, Robertson, Shelby and Weakley ; typhoid-fever in Anderson, Hamilton, Hardeman, Robertson, Shelby, Stewart, Weakley and Williamson ; scarlet-fever in Bradley, Davidson, Decatur, Hamilton, Knox, Montgomery, Robertson and Shelby ; chicken-pox in Bradley ; influenza in Lewis.

Chattanooga, 27,000 white and 13,000 colored : Total deaths in November, 30—19 of which were colored, and 11 under five years of age. Annual death-rates, 4.88 for the white population, and 17.53 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored : Total deaths in November, 50—20 of which were colored, and 15 under five years of age. Annual death-rates, 11.51 white, and 26.33 colored, per 1000.

Memphis, 33,800 white and 27,700 colored : Total deaths in November, 112—63 of which were colored, and 29 under five years of age. Annual death-rates, 17.39 white, and 25.29 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths in November, 98—45 of which were colored, and 19 under five years of age. Annual death-rates, 11.64 white, and 16.28 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 246,000 : U. O. B. Wingate, M.D., Health Officer, reports for the month of December 342 deaths, of which number 184 were under five years of age. Annual death-rate, 16.42 per 1000.

From zymotic diseases there were 79 deaths, and from consumption, 23.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of October, 1892, shows that there was a total mortality of 1378, of which number 798 were of children under five years of age. From infectious and contagious diseases there were 116 deaths ; from pneumonia, 149 ; from meningitis, 88 ; from gastro-enteritis, 95 ; still-births, 120.

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THE NEED OF SANITARY SUPERVISION OF SCHOOLS.*

By JEROME WALKER, M.D., Lecturer on Physiology and Hygiene in the Brooklyn High Schools.

AN invitation to a physician to give information to teachers and others interested in education upon the "Sanitary Supervision of Schools" implies that there is need of such information and of such supervision. The observation and experience of many in the audience corroborate this statement. That all present do not recognize it is because some have been exceptionally favored with healthful school-houses in healthful localities.

But Brooklyn has made some important advances in this respect during the last dozen years: has improved the warming and ventilating appliances of many school-houses and erected some of a better class. But there is still room for improvement.

Many present can doubtless call to mind school-houses or school rooms which are overcrowded, where the odor is almost unbearable, where the air is either so warm that teachers and pupils are depressed and have to struggle through the school session, or so cold that sneezing, coughing, and shivering are common; where children, uncomfortably seated, are bending their bodies into constrained positions, and studying or writing with their books but a few inches from their eyes, on account of insufficient light, promotive of defective eyesight; or you may recall to mind schools where irritability and nervousness increase among pupils and teachers; where flushed

* Address at the Brooklyn Institute, January 30th, 1893.

faces, absent-mindedness, and sore throats are indicative of affections that are fastening their hold upon pupils ; where the cellars are without ventilation, damp, or dirty, or all combined ; where the conveniences for drinking water are insufficient, and its use attended by the risk of infectious disease ; where the water-closets are few in number, badly arranged, and sometimes exceedingly obnoxious for want of cleanliness. All such conditions are consequent upon the neglect of sanitary supervision. Yet teachers, school trustees, and the people at large recognize their danger only in a general way. At graduation exercises and "grand receptions" are exhibited those who may justly be called the "survival of the fittest." Physicians in private practice, dispensaries, and hospitals see the effects in detail, and know that many of their younger patients would have been just as "fit" as any other children to survive school life had the State, city, or town considered sanitary conditions of at least equal importance with text-books, discipline, and systems of study. School authorities are both morally and legally bound to provide these conditions, without which educational facilities fail to accomplish their most important purpose. Tax-payers have a right to demand, for public health, public efficiency in this direction, without which public wealth is unattainable.

Sanitarians have long known that contagious diseases, especially in cities, largely increase at the fall opening of the schools, and that much of the debility, nervous prostration, and many of the ailments that afflict children of school age are due to school life.

Cholera, which comes to our shores only at rare periods, is dreaded because of its sudden onset and mortality of nearly 50 per cent. It excites unnecessary alarm and panic even among careful and cleanly people. Scarlet-fever, diphtheria, and typhoid-fever, having a smaller per cent of mortality than cholera, visit us *every year* in varying amount, and claim hundreds of victims more than cholera ; and many of those who survive these common diseases are incapacitated for work for months, and some by complications which render them chronic invalids for the remainder of their lives. So common are contagious diseases in our cities that familiarity with them almost breeds contempt.

Parents and school trustees, with that strange infatuation which is so deeply imbedded in our human nature, fully agree as to the possibility, and even probability, of *other* families and schools being devastated by an infectious disease, leaving their own exempt, until a so-called "dispensation of Providence" in the form of a severe disease claims its victims among their own. There is no exaggeration in this statement. We all know it to be true, whether we admit its truth or not.

We glibly repeat that trite saying that an "ounce of prevention is worth a pound of cure," and in a general way recognize its force. The "ounce" may seem sometimes expensive, but some know, to their sorrow, that the cost of a "pound of cure" in money spent is, besides, time wasted and health shattered. A community higgling about the cost of the "ounce of prevention" in sanitary work is appalled at the cost of stopping the ravages of an epidemic. The ounce of prevention is practical sanitary measures, not the "art of preserving health" amid unsanitary surroundings, but applied knowledge.

Earnest men and women are studying sanitary problems with all the light that research and scientific experiments can afford. The American Public Health Association, composed mainly of physicians, sanitary engineers, and instructors of various kinds throughout the country, is a representative sanitary body, through which State boards of health have been formed, quarantine laws established, and rules for the prevention of the spread of disease formulated.

Sanitarians sometimes differ, as school trustees, superintendents, teachers, and clergymen often differ, but the difference among sanitarians is on questions as to the *best* means of preventing disease. A teaching of human anatomy and physiology as a part of the school curriculum is of little value to the pupils except as the basis for the study of the higher and more important subject of hygiene. Teachers of physiology in schools should be known as instructors in hygiene.

The value of the study of hygiene is appreciated by others than physicians. President White, of Cornell University, after urging that the study of physiology and hygiene should be introduced into colleges as well as schools as a "*necessity for the preservation of the public health*," adds: "All would not pursue the study—the majority probably would not—but if an

opportunity were offered, I am satisfied that from every college and university would go out a body of men not only well instructed in the great principles which underlie sanitary matters, but well disciplined in the obtaining of such instruction. . . . I prize all literary study as highly as any person ought, but yet I maintain that there is, after all, a higher culture. The very ideal, the very god of literary culture, is Goethe ; and yet, splendid as he was, there is a higher culture which he lacked, even from a purely earthly point of view. I maintain that in the studies I now urge there comes a culture of high purpose, a culture of thought for our fellow-men, a culture involving the idea of duty, which certainly is worth any other sort of culture."

"Culture" (or development) of children means something more than literary excellence and the ability to talk well about what one has seen, heard, or read. It means "physical endurance, moral soundness, and a good, practical judgment." As Dr. Lincoln, of Boston, puts it : "When a young man is thirty years old he will assuredly not be groaning that his tutors gave him but too imperfect an acquaintance with the Greek lyrists or visigothic numismatology ; he will probably be wondering (if he is an active American) whether it pays to know all that ; and at forty he will have discovered that the one thing which *does* pay in this life is life itself—that vital force and endurance and a good digestion are what are needed as much as anything from books to insure success in life."

Sanitary supervision of schools can never be successful until school teachers, principals, superintendents, and trustees believe in the art and science of preserving health in the schools, and heartily co-operate with the sanitary inspectors of schools.

As a means to this end, therefore, not only pupils should be taught physiology and hygiene, but the teachers also ; and in training schools for teachers instruction should be given in the sanitary care of children and school-rooms, the detection of contagious diseases in their early stages, and various matters pertaining to school hygiene.

What are some of the sanitary defects which are remediable by teachers, school trustees, and health authorities ?

A too common cause in schools of lassitude, headache, impaired digestion, nervous fatigue, irritability, glandular enlarge-

ment, scrofula, sore eyes, and infectious diseases is *foul air*. Such air has a burned, stuffy, or close odor, perceptible to a person with a good sense of smell coming into a room from the fresh outside air. It is caused by overheating, imperfect ventilation, and dirty clothing, or damp or foul outside clothing placed in an outside apartment near the air shafts or stowed away under desks or seats, or hung in the school-rooms. It is astonishing how readily teachers and principals get accustomed to such air by frequent contact with it, their sense of smell becoming dulled.

Carbonic acid gas, in normal air, 4 parts per 10,000, may reach as high as 6 parts—the so-called permissible quantity—before the air begins to be poisonous. But sanitary inspectors in Brooklyn, as well as in other cities, have found it in schools as high as 32.2 parts per 10,000. The amount of carbonic acid can be definitely ascertained by simple appliances even in the hands of teachers, and should be sought for; but such search is mainly valuable because an increased amount of carbonic acid is indicative of an increased amount of the more deadly animal poisons. Such poisonous emanations arise from dirty children, and even cleanly children, especially in an overcrowded and ill-ventilated room. This being the case, surely proper ventilation is a necessity in a room where many children are obliged to remain for a number of hours, whether they are willing or not.

Such ventilation in schools, to be effective, must, in winter, be associated with the heating apparatus. A system of this kind has proved effective in Elmira, Toronto, some of the schools of New York City, and in some of the schools of Massachusetts. Proper ventilation provides for the inlet of thirty cubic feet of fresh and warmed air for each child per minute, and for the prompt removal of the same amount of foul air in the same time without the creation of a draught of cold air, which "cuts like a knife," and is dangerous. Window and door ventilation is no longer advised as sufficient for school-rooms, though it may answer for a house, into which and from which children can go from time to time.

Of course a proper system of ventilating and heating is expensive, but the expense is warranted by the good results obtained. Massachusetts, which leads in sanitary, as it does in

many other matters, established in 1888 a State district police, independent of the State and municipal boards of health and boards of education. Among its duties is the sanitary inspection of schools, and its field of usefulness is the entire State. With the necessary funds and the necessary power proper ventilating and heating apparatus has been introduced even into old and unhealthful schools with astonishingly good results, as evidenced by the testimony of teachers, principals, and school committeemen.

And what has been done in Massachusetts can be done in New York State. The problem of how to supply adequate heating and ventilation of school-houses in all kinds of weather seems to have been solved. The best authorities agree that the temperature of school-rooms can vary with safety from 68° to 75° F., but would better be at near 70° F. Little reliance can be placed in determining the temperature upon the ordinary thermometers in use. Thermometer makers do not warrant such instruments. Schools should be furnished with registered standard thermometers only.

A number of the infectious diseases are denominated by sanitarians as "filth diseases." And filth emanates from dirty clothing, dirty cellars, defective drains, insufficient and badly constructed and badly maintained water-closets, from begrimed water-cups and other drinking appliances, and from old and decayed flooring.

In the model school children are encouraged to be clean by precept, example, and surroundings, and by visits to their parents. The introduction of baths into schools, as advocated and used to advantage in England, can hardly, I think, become practical in this country, where children of all grades of society so thoroughly intermingle, unless it be in some of the primary schools in the poorer districts.

The model school building provides commodious and well-ventilated closets for outer garments apart from the school-room, has clean and well-aired cellars, does not know what a defective drain is, maintains a sufficient number of clean and automatically flushed closets, furnishes new and reliable drinking appliances before the old ones have become dangerous. It has hard pine floors deadened by mineral wool, which is noise, fire, and vermin proof, and ornamental metal ceilings

with no danger of falling plaster. Now, why should not all schools be model schools? What right has a city to furnish any other?

In glancing over the reports of the health authorities of different cities, it is astonishing how much alike are the descriptions of their unhealthful schools. There seems to be in many of these cities the same conflict between school trustees and trustees of health. The mind of the layman is not trained in health matters as is the mind of the physician. The one appreciates the danger of disease only when the disease is rampant; the other is ever on the alert to prevent it, and appreciates the danger all the time. It is this conflict of views and authority which has delayed the work of school hygiene.

It seems impossible to believe that as late as 1889 a teacher of a school near Boston did not dare to open the windows of her school-room on account of the terrible odors arising from the outhouses adjacent; and that these outhouses had not been emptied for two or three years. It is reported that "instances of this kind could be multiplied; but it is sufficient to say that the records of this department" [State District Police] "contain abundant evidence of the imperative necessity of the *sanitary supervision of the school-houses of Massachusetts.*" If this is true of Massachusetts, how much more true of States not abreast with it in sanitary matters!

In the model school respect is paid to the body as well as the mind, and the saying, "A sound mind in a sound body" is the key-note of education. Its truthfulness has been tested by many observations. President Eliot, in an address to the alumni of Harvard University, uses these words: "Now, everything depends with us and in the learned professions upon *vigor of body*. The more I see of the future of young men who go out from these walls, the more it is brought home to me that professional success and success in all the learned callings depend largely upon the vigor of body, and that the men who win great professional distinction have that as the basis of their activity." A writer adds: "Now, if young men must depend for success in life upon the 'vigor of the body,' is it not equally important for young women, who are to be their competitors in the learned professions and in

various departments of business, and, what is still more important, who are to be in the broadest and fullest sense the educators of the race?" Canon Charles Kingsley in 1875 came to the same conclusion; for, in answer to those who believe in mental culture above everything else, he writes as follows: "You say mind makes the man, not body. We do not want our children to be stupid giants and bravos, but clever, able, highly educated, however weakly Providence or the laws of nature may have chosen to make them. Let them overstrain their brains a little; let them contract their chests and injure their digestion and their eyesight by sitting at desks poring over books. Intellect is what we want. Intellect makes money. Intellect makes the world. We would rather see our son a genius than an athlete. Well, and so would I. But what if intellect alone does not even make money save as Messrs. Dodson & Fogg, Sampson Brass and Montagu Tigg were wont to make it, unless backed by an able, enduring, healthy physique such as I have seen almost without exception in those successful men of business whom I have had the honor and the pleasure of knowing. . . . We must, in the great majority of cases, have the *corpus sanem* if we want the *mentem sanem*, and healthy bodies are the only trustworthy organs for healthy minds." Despondency, discontent, interference with mental health, and ailments of the nervous system may frequently be traced to muscular weakness and physical causes.

Dr. Mary Studley, of the State Normal School for Girls, at Framington, Mass., affirms, after many observations, extending over a number of years, "that the best possible balance for a weak, nervous system is a *well-developed muscular system*," and adds, "weak, shaky, hysterical nerves always accompany soft, flabby muscles; and it is a mournful fact that the *majority of the young women* whom I meet in schools are notably deficient in muscular development."

Physical culture to many persons means only an increase in the size, density, and strength of muscles. They cannot, therefore, appreciate its value in educational institutions. The physiologist and sanitarian, on the contrary, know that physical exercises adapted to *the health and strength of the individual*, and in the open air or well-ventilated apartments, make also the nervous system stronger and the brain clearer—better adapted to grasp the problems of life.

As Dr. Hartwell, director of physical training in the public schools of Boston, puts it : " The results to be obtained from a proper system of physical training are these : Erect and graceful carriage of the head and trunk ; a broad, deep, and capacious chest, in which the heart and lungs, developed to their normal size and strength, shall have free, full, and regular play ; square shoulders ; a straight back fully developed, and well-rounded limbs and the power to execute with ease, precision, and economy of force such movements as are involved in the simpler exercises of strength, speed, and skill, and in ordinary gymnastics and athletic feats." While we are thankful that there is the prospect of the introduction of physical culture into our local system of public instruction, it may be emphasized very strongly that the good results that should follow from such culture will not be obtained if it is to be carried on in the vitiated atmosphere of some of our school-rooms. Frequent movement of the body to the young child is a *necessity* for health ; and, as Mr. Wade, Chief of the Massachusetts District Police, says : " The notion that young children must be kept perfectly still and motionless during the session of school ; that no noise from the movement of the feet in shifting the position to gain ease and comfort thereby can be allowed, is a barbarism that is responsible for much suffering." A writer in the *Forum* gives the following as the result of his observations :

" The typical New York City primary school is a hard, unsympathetic, mechanical drudgery school, a school into which the light of science has not yet entered. Its characteristic feature lies in the severity of its discipline, a discipline of enforced silence, motionlessness, and mental passivity. The difference found in going from room to room and from school to school—I have seen many of them—is a difference in degree only and not in kind. One teacher will allow her pupils to move their heads a little more freely than the standard, another will allow a little more freedom to the shoulder joints, but less freedom in moving the head, and the third requires the children to keep their hands in their laps, instead of behind their backs. The character of the instruction is identical with that found wherever this false system of discipline prevails, being of that form which appeals to the memory

alone. The aim of the teacher is simply to secure results by drilling the pupils in the facts prescribed for the grade. The public school system of New York City affords, therefore, another example of how, under unwise management, a trained teacher may be reduced to the level of one who has had no training."

Anything that weakens physical health tends also to weaken mental health. Long school hours, constrained positions, rigid discipline, especially in the primary grades, hinder the development of both body and mind. It is a noteworthy fact that "habitual truants exhibit physical stamina above the average of those pupils of the same age who are in regular attendance at school."

The tendency is so marked in some schools toward undue physical restraint that I quote the following from the article in the *Educational Review*, on "Habitual Postures of School Children," by Dr. Eliza Mosher, of this city :

"The restless activity peculiar to infancy and childhood is the guardian of physical symmetry during this period. In sleep, as well as during waking hours, the muscles keep busy turning and twisting the little structure in a way our gymnasium teachers might well emulate. Occasionally, a specially 'good baby' suffers in shape because he does not demand for himself the right to kick and cry. Through some physical defect on the part of mother or nurse, infants are sometimes held habitually upon one and the same side. Pressure thus applied unequally to the easily moulded bones is liable to produce one-sidedness of the skull and chest, and sometimes of the pelvis also, which mars the individual through life.

"With school work begins confinement within doors, and to the sitting posture, with a subduing of the restless activity so long the child's safeguard. Rarely is the seat assigned the little victim so constructed as to be helpful in maintaining the body in equilibrium. A desk is placed before him, which eloquently offers support, eagerly accepted by one or both elbows, placing his body almost continuously in the third or fourth position of our classification. Should the teacher's desk and the blackboard be at his right or left, as is often the case, instead of in front of him, he is obliged, in order to give

her his attention, to twist his body into the second and most dangerous of the sitting postures described. The old custom of requiring children to sit sidewise at the desk to write, held the body with the spine placed strongly in rotation.

“Relief from the monotony of sitting comes with the call to recitation. Here, perchance, the pupil stands, although, if the opportunity presents to lean against the wall or seat, he quickly utilizes it; otherwise he is sure to swing the body over upon one leg, into the third position of our series. In spite of his teacher’s oft-repeated command, ‘Stand up!’ he drops again and again into this posture, until it becomes habitual, with its far-reaching evil consequences.

“The hands are troublesome members at times, and the disposal of them becomes a vexed question to teachers. The study of our fifth position in sitting shows that no more serious mistake *can* be made in the school-room than to require children to fold the arms across the chest. Folding the arms behind the back, as a change from forward positions, is sometimes restful, but, if long continued, tends to deepen the normal curves of the back.

“It is a common practice for children to carry a pile of books upon the arm to and from school. This is harmful in its tendency, for several reasons: It confines one arm, preventing its easy swing in walking, an important element in equalizing the circulation of the blood. It unbalances the body, making necessary a shifting of the parts to restore equilibrium, thus placing the trunk in an unsymmetrical position. Most individuals, adults as well as children, acquire the habit of using one arm more than the other in carrying books, bags, etc. That the habitual weighting of the same side tends to produce deformity is shown in the figure of the man who has carried a pack on one shoulder continuously.

“Nearly all occupations in life present temptations to the body to acquire a habit of posture which, in time, modifies the shape of the individual. The teacher herself, while using her best efforts to train her pupils to right habits of posture, is likely to become unsymmetrical. A careful physical examination made by me of over two hundred teachers (women), revealed the fact that a majority of them had the mark of their occupation stamped upon them, either in the twist of

body, which results from standing on one and the same leg, with the other thrown to the side, or the high shoulders and projecting head, caused by sitting habitually in a chair with arms.

“The woman who sews by hand acquires a low right shoulder, with head dropped toward the opposite side; while the one who spends many hours each day working on the sewing machine becomes high-shouldered and short-necked. The man who stands at his desk all day acquires the same shape, so does the sailor who climbs the mast. The man of letters does not sit over his desk many years without elongating the muscles which attach the head to the spine, thus acquiring the forward poise of the head so often seen in the pulpit and upon the lecture platform. Drug and dry-goods clerks, if right-handed, work with the body resting on the right foot. The resultant shape we are all familiar with, if observant. The horse-car driver, the truckman, and even the hod-carrier all receive in time their trade-mark.”

Our model school provides the *genuine* kindergarten teaching (there are many imitations) for the youngest children, combining physical with mental culture, training the hand and the special senses. For the next older pupils the one-half time system is in vogue, or there are three hours' mental work in the forenoon, with play in well-arranged yards or play-rooms, and one hour's industrial work in the afternoon. *All* the children in this school have mental and physical work and play adapted to their respective needs. Playgrounds are supervised so that all will exercise, and the weak shall not be hurt by the strong. Pupils are not burdened and families fretted by “home work,” and under no circumstances are children kept after school hours in school, to the detriment of their health and spirits, even if such retention enables a teacher to keep up “grade work.” And teachers are not burdened with the “drudgery of correcting exercises, looking after examination papers, making up averages of marks, weekly and monthly reports, and other school statistics, which are too often merely pigeon-holed afterward, to be withdrawn, perhaps, for a *few* numerical results.

Each child in this school has a suitable seat and desk, and all are urged to devote ample time to their meals. For some the janitors provide suitable luncheons.

Calisthenics have given way to better methods of exercise—the Ling system, gymnastics under a competent teacher, as employed in the Polytechnic Institute of this city, or well-arranged military drill. Of the last, Sir Edwin Chadwick, the eminent sanitarian, used to say, “it teaches duty, self-reliance, cleanliness, order, and obedience.” In this school we have so often referred to girls have been known to actually romp. One of our eminent surgeons, a keen observer of persons and things, in an article on exercise, writes :

“Girls need health as much, nay more, than boys. They can only obtain it as boys do—by running, jumping, tumbling ; by wild, loud, and boisterous mirthfulness, and by all sorts of innocent vagrancy.

“At least once a day girls at school should have the halters taken off, the bars let down, and be turned loose like young colts.

“Calisthenics, with a march of one hour each day, in solemn procession, along paved streets, is no guarantee against crooked backs and broken constitutions ; but four hours’ unrestrained romping, in an open field, will make these girls as straight and as fleet as an arrow.

“Calisthenics may be very genteel, and romping very ungenteel ; nevertheless, the one is but the shadow, the other the substance of healthful exercise.”

In our model school the eyesight of pupils is tested by the teachers with test type at the beginning of each term, and near and far-sighted children discovered. What misery would be saved to some children by such examinations and how the impatience of teachers at the inattention of some pupils would be lessened. Only text-books with creamy or “natural” colored paper and with suitable type are used. No glaring light shines through uncurtained windows or is reflected from white walls. Subdued and yet sufficient it falls on the child’s paper or book from the left side or from both sides, and not from in front or from behind. The color of the wood-work and walls of the school-room are restful to the eyes.

The teacher in this room is both kind and firm ; she appreciates the value of *both* mental and physical culture, is quite proficient in detecting early signs of sickness, and notifies the sanitary inspector each week of the number of children de-

tained at home during the week from sickness. These reports will enable him to pick out unhealthful schools and give a clew to the remedies to be applied.

In what has now been said I am fully aware that many of the defects prevalent in the schools of our land have not been touched upon ; but enough has been said to prove, if proof is required, that defects are abundant ; that there is no good reason why they should exist in this age of progress, and that most of them can be remedied. The defects referred to exist in some private, as well as in the public schools, especially in schools maintained in private houses, which are illy adapted to school purposes. The only way that sanitary defects in schools can be remedied is by competent sanitary supervision.

I have already suggested various ways by which teachers and principals can assist in proper supervision, and how much depends on their assistance and hearty co-operation, or what may be termed the sanitary *esprit du corps*. But the sanitary construction of school-houses, as well as their maintenance, should be delegated only to competent medical inspectors and sanitary engineers. In towns and small cities one medical sanitarian can do the work. In large cities more are necessary, and sanitary engineers as well, in co-operation with them. But little good can be accomplished anywhere without the necessary funds and sufficient power. Shall these officers be under the control of and appointed by school trustees, local boards of health, or by the State, through its governor, or by some other State authority ?

My own belief is that in New York State the regents of the university should be the appointing power, and should provide sanitary officers for the entire State, giving similar instructions and power to all of them ; but such officers should co-operate with local boards of health and boards of education. Good officers would be more likely to be appointed by a State board than by any city government.

Whatever plan may be pursued, it must not be expected that competent officers can be obtained without good compensation.

Boards of education change their members at comparatively short intervals ; and there are so many interests to be subserved that competent officers are not always appointed by

such boards, or, if appointed, they have an uncertain tenure of office. Yet it is possible for a competent sanitary officer to be an appointee of an educational board. Dr. William C. Wey, of Elmira, who was largely instrumental in procuring sanitary supervision of schools in that city, writes under date of January 1st, 1893 :

“ DEAR DOCTOR : In reply to your letter of the 30th ultimo, I would state in the order of your questions :

“ 1. A medical officer, called a Sanitary Superintendent, is the appointee of the Board of Education of the city of Elmira. He is, and has been chosen, I am glad to say, without reference to his political belief ; and, as a consequence, he is a competent and conscientious man.

“ 2. When the office was created it was primarily with a view to insure the enforcement of the law with respect to the admission to the schools of properly vaccinated children only. The duties of that officer include the whole field of sanitary science, in connection with the prevention of contagious diseases, the removal of filthy children, the admission of light and air in school-rooms, the adjustment of heat, the inspection of closets and sinks, cubic space, etc. Reports from that officer to the Board of Education are always in order, are respectfully received, and his suggestions are usually adopted.

“ 3. The law in respect to vaccination has been so thoroughly enforced that out of the entire school population in a city of 30,000 people, but *two* unvaccinated children are in attendance at the public schools. . . . All known or recognized communicable diseases are shut out from the schools. The Sanitary Superintendent, in concert with the City Health Officer, is made acquainted with the location of houses in which diphtheria, scarlet-fever, measles, and other diseases are prevailing, and protects the schools accordingly. His vigilance is a spur to the several school janitors in the performance of their work, and his advice to the Board of Education brings about many lesser reforms, as well as reforms of greater significance.”

The same general objections to the appointment of a sanitary inspector by a board of education hold true, though in a minor degree, of the appointment of such an officer by a local

board of health—an appointment by a State board would be preferable.

Nearly all boards of health, especially in large cities, already have the power to remedy serious sanitary defects in schools that manifestly imperil the lives of teachers and pupils, and which school trustees fail to remedy. But a local board, being a department of the city government, as is the local board of education, ordinarily only suggests what sanitary improvements are necessary. But in times of epidemics, or when infectious diseases are threatening, a more active method of dealing with schools is undertaken, and schools are closed, certain children excluded, or thorough vaccination is instituted. An active co-operation of the sanitary school inspector with the local health authorities, however that officer may be appointed, is absolutely necessary.

Contrary to a popular belief, health boards do not close schools and exclude certain pupils without regard to the effect of such closure or exclusion on the interruption of the work of education.

The Local Government Board of England has recently issued a circular, which has been endorsed by the Massachusetts State Board of Health, and which may, therefore, be considered as authority and representative of the work of boards of health in this direction. The following are extracts from it :

“ 1. The diseases for which schools may be closed or children excluded are such as cause infection from person to person—scarlet-fever, measles, diphtheria, whooping cough, small-pox, and roetheln, in order of relative frequency. More rarely the same questions arise as to enteric-fever and diarrhœal diseases, which spread mainly by agency of local conditions—viz., infected school water-closets and outhouses.

“ 2. An universal principle is, that all children infected are excluded, however light the infection may be to others.

“ 3. As to mumps and skin diseases, school interests are to be considered more than in the other affections mentioned ; but if these should spread by allowing children to go to school, the loss to children and school would be greater than to exclude the infected.

“ 4. Closure of schools is a grave step for sanitary authorities to make, and seldom should be undertaken except in an

actual epidemic, nor then as a matter of routine nor unless there is a clear prospect of preventing the propagation of disease not to be attained by other means.

“ To decide, the fact of many pupils affected is not a reason ; but if in a large majority of families the first case be a pupil, and especially if among families far apart and attending the same school, school should be closed, and if the infected cases can be *proved* to have attended the school.

“ 5. The medical officer should promptly notify the teacher of an infected pupil, and it should be kept from school the length of time the medical officer specifies. School officers should *promptly* notify health authorities of cases of contagious disease, no matter what *name* is used for the disease of absence. Such officers during an epidemic should note any symptoms, such as shivering, headache, languor (especially if sudden), vomiting, rashes, sore throat. During scarlet-fever or diphtheria epidemics, any sore throat is suspicious, and pupil should be excluded until safe assurance is given by a physician.

“ 6. Commonly the failure to stop the spread of an epidemic, especially among pupils, shows continued attendance of unrecognized mild cases, and school may have to be closed.

“ 7. A matter of importance in deciding as to closure is the opportunity for intercommunication of pupils outside the school. In small hamlets this is slight. In some sections of cities, as in tenement districts, more harm than good may be done by closing.

“ 8. All notices of proposed closure of schools should be sent to school managers in writing, the reasons given, and time of closure specified and made as short as possible, and a second notice given before the time for the expiration of the first, if closure is to be continued beyond the time specified in the first notice.”

New York City has a competent sanitary superintendent—an appointee of the local health board—and is doing good work.

A fourth method of supervision is that pursued in Massachusetts by the State district police. In the report for 1889 is the following : “ The sanitary condition of the school build-

ings in the State reveals a condition of things which demands thorough and radical treatment. No false notions must be permitted to prevent publication of the facts nor the application of the proper remedy. It is always difficult to secure *prompt action by the local authorities in cases which call for a liberal expenditure of money.* An increase in the rate of taxation is as much feared in some quarters as the approach of an epidemic. A department which has marked out its line of work and subdivided its share of the annual municipal appropriations does not like to be called upon to revise its plans and prepare for emergent occasions. A motion to refer to the next city government is always in order." This State district police has been the means of much improvement since its institution four years ago.

There are 57,000 primary school children and 26,000 children in the other departments of the public schools in Brooklyn, and over 2000 teachers. There are, besides, thousands of teachers and pupils in private schools. Will it not pay to have sanitary supervision?

NEW YORK QUARANTINE, AND THE SANITARY CONDITION OF NEW YORK CITY.

REPORTS OF COMMITTEES ON HYGIENE TO THE STATE MEDICAL SOCIETY, ALBANY, FEBRUARY 8TH, 1893.

To the Medical Society of the State of New York :

YOUR Committee on Hygiene report as follows :

The chief subject which has engaged the attention of your committee, and upon which it was prepared to report, has been the need of national legislation for the protection of the public health ; but on account of the announcement made to the Society yesterday, that Congress had just passed a national quarantine bill, your committee decided not to present the report comprehending that subject which had been prepared.

It will doubtless be gratifying to the Society to learn that Dr. Bell, a member of this committee, reports from a recent visit to the quarantine establishment at the Port of New

York, that arrangements and estimates are in progress for such speedy additions to and improvements of the establishment as are well calculated to meet any emergency likely to arise.

Your committee is pleased to submit the following contribution from the Committee on Hygiene of the Medical Society of the County of New York :

THE SANITARY CONDITION OF THE CITY OF NEW YORK.

The Committee on Hygiene has thought it wise in its report to review briefly some sanitary features of the city, giving expression to its opinion as to needed reforms and improvements.

The report of Dr. H. D. Chapin, of last year's committee, called attention to the unsanitary condition of many school buildings and their surroundings.

Following this line of work, sanitary inspectors have inspected the immediate vicinity of each public school building, and wherever a nuisance was found an order was issued by the Board of Health for its abatement.

In this way much practical good has been accomplished.

Stables.—It must be conceded that important improvements in the conduct of stables in the city has been accomplished within the last few years, and yet without entailing any considerable hardship upon their owners, by compelling the abandonment of all manure vaults beneath the sidewalk and of all those in rear yards which are offensive. In these latter cases owners are compelled to keep manure within the stable, and in removal to load it within the premises, thus preventing the carrying of loose manure across the sidewalk, which formerly was a common nuisance.

Manure Dumps.—Large accumulations of manure, amounting to many thousand cart loads, have been permitted in past years at the "dumps," especially at the foot of East Forty-sixth Street, and its removal in the springtime has been productive of offensive odors which were wafted to considerable distances, but for the past few years manure dealers have been compelled by the Board of Health, aided by the Ladies' Health Protective Association as the chief complainant, to load the fresh manure directly upon scows or cars for imme-

ciate removal from the city. Thus has been practically abolished a most grievous nuisance.

The manure carts in use in the city have shown some improvement in construction and in being better covered than in former years, but many of them are still faulty in both particulars.

Smoke Nuisance.—The consumption of bituminous coal in this city is a subject for serious contemplation. Its use on locomotives is unnecessary, except for economic reasons.

Much has been accomplished by the Board of Health by compelling the use of anthracite coal or coke upon “switching” locomotives, but through locomotives still foul the atmosphere by the use of soft coal.

The clouds of smoke often seen issuing from the chimneys of wood-working establishments is a nuisance readily avoided by proper appliances and careful stoking.

An occasional arrest of a careless stoker or proprietor would effect a mitigation of this nuisance.

Slaughter-Houses.—The business of slaughtering cattle and small stock, and the care of the resulting fat and offal, as conducted in the city, is capable of much improvement. The chief fault lies in improperly constructed slaughter-houses and the irresponsibility of persons in charge. The remedy lies in the construction of proper abattoirs, with facilities for promptly making fertilizers of the offal and rendering the fat while both are still fresh.

Scattered as the business is at present, it is impossible for the Board of Health with its available force to watch the slaughtering as it should be watched, both to insure cleanliness in and about the slaughter houses and to prevent the sale of the carcasses of diseased animals.

It is indeed humiliating to admit that there are persons so depraved that they will not hesitate to sell for consumption as human food the flesh of animals affected with tuberculosis.

The penalty for such a crime should be such that it would not be committed but once in a lifetime.

Milk Supply.—The quality of milk offered for sale in the city is far superior to that sold prior to 1873, when, largely through the efforts of Professor Chandler, then President of the Board of Health, the sale of adulterated milk was for the

first time interfered with. But there still remains to be accomplished that which is far more important than the prevention of the sale of mere watered milk—namely, the prevention of the sale of milk from diseased cows. This must be accomplished at the dairies by a thorough inspection of the cows and the food with which they are fed.

Your committee would strongly urge that the Society give this question the attention which its importance deserves.

Croton-Water Supply.—The improvement in the *quantity* of water supplied to the city during the past year has been very marked, and its quality has generally been very good; but your committee would urge the necessity of continuous surveillance of the Croton-water shed, and the prompt exercise of authority on all occasions against the possibility of polluting the water-supply.

This precaution seems especially important at the present time in view of the more than possible appearance of cholera.

Unnecessary Noises in the Streets.—Your committee thinks that the question of street noises is a subject worthy of consideration. Much has been accomplished in this direction of late years by the laying of asphalt pavement, but there are many streets and avenues where this pavement is impracticable on account of heavy traffic and steep grades.

There should be enforced regulations compelling trucks laden with iron girders and such like to be so loaded with intervening pieces of wood or other material as to effectually prevent the infernal racket which we so often hear.

The unnecessary ringing of bells and sounding of whistles on locomotives has been practically abolished by the enforcement of orders of the Board of Health.

Disposal of Ashes and Garbage.—Your committee is glad to observe that the question of a better method of the disposal of ashes and garbage than dumping at sea, or rather in the mouth of the harbor, is being agitated.

The separation of ashes and garbage in many wards of the city is possible, if the Department of Street Cleaning did not empty both receptacles into the same cart.

If, however, the separation of ashes and garbage be deemed inexpedient, then suitable crematories should be constructed in proper places along the river front or upon Riker's Island,

where the resulting material may be profitably used in making land.

During a great portion of the year the mixture of ashes and garbage may be dumped, as it is collected, behind bulkheads or cribs at Riker's Island or other places remote from habitations without danger of giving offence, but during warm weather the remedy is cremation. As evidence that the process of cremation may be conducted with little offence, permit me to tell you that the chairman, during a visit to London in August, 1891, accompanied a health official of that city in search of a crematory in the "Whitechapel" district.

Considerable time was spent in making inquiries of citizens, cab-drivers, and policemen as to location of the crematory, but no one seemed to know of its existence. Suddenly we came upon it. It was in full operation, and had been steadily burning for a period of three months without the use of any fuel other than that contained in the ashes and cinders mixed with the garbage, the strong draught of the lofty chimney proving sufficient to maintain combustion. No offensive odors were perceptible outside of the enclosure.

Your committee would strongly urge the importance of the adoption of this measure or some other, whereby the harbor may be saved from destruction, and the residents of neighboring watering-places be permitted to enjoy their otherwise charming surroundings without the defilement of the beach with offensive garbage and offal.

Care of Contagious Diseases.—With reference to the care of contagious diseases much is still to be desired.

Great credit is due Dr. Jacobi and other members of this Society for their zeal and energy in securing the establishment and maintenance of the Willard Parker Hospital, which is but a sample of several which should be constructed in different parts of the city.

It is a source of gratification to know that there is a probability that in the near future the old rookery at the foot of East Sixteenth Street, that has been used for so many years as a reception hospital, is to be torn down and a new and commodious reception hospital constructed.

Dr. Dessau of this committee has investigated many of the dispensaries of the city, and, so far as has been ascertained,

no one of them is provided with proper facilities for the isolation of patients sick with communicable diseases.

It is of frequent occurrence that children suffering from contagious disease are seated for a length of time among those with non-contagious diseases.

The plain remedy is that every dispensary be provided with proper isolating rooms, and that every patient upon entering the waiting-room be seen and properly disposed of by a physician, and not by a non-professional clerk.

The mortality from whooping-cough and its sequelæ is so great (averaging 450 per annum in this city for the past ten [10] years) that it would seem that greater precautions should be taken to prevent its spread.

Children suffering from the disease are permitted to frequent the streets, parks, and public conveyances; indeed, some nurses appear to take a fiendish delight in thrusting children with whooping-cough into groups of well children.

Your committee would also call attention to another source of danger in the failure on the part of persons in charge of stores and shops, especially where articles for children are sold, in exercising proper vigilance as to the existence of contagious disease among employés or their families.

Finally, with reference to cholera, the committee feels that it cannot do better than to express its endorsement of the report of the Advisory Committee of the Chamber of Commerce. Respectfully submitted,

*Committee
on Hygiene,
Medical Society
of the County
of New York.*

W. A. EWING, M.D.,
Chairman,
GEORGE H. BOSLEY, M.D.,
S. HENRY DESSAU, M.D.,
ROBERT T. MORRIS, M.D.,
MARY PUTNAM JACOBI, M.D.

*Committee
on Hygiene,
Medical
Society of
the State of
New York.*

LAWRENCE JOHNSON,
Chairman,
A. N. BELL,
O. W. PECK,
D. S. BURR.

NATIONAL HEALTH SERVICE IN CONGRESS.

REPORT OF SPECIAL COMMITTEE OF THE MEDICAL SOCIETY
OF THE STATE OF NEW YORK ON THE NEED OF A NATIONAL
BOARD OF HEALTH, ALBANY, FEBRUARY 7TH, 1893.

YOUR committee, to which was referred the subject presented in the anniversary address at the last meeting of this body, and which was instructed to "confer with the medical societies of other States, with a view to some concerted action for the re-establishment of the National Board of Health," and in a general way to consider all matters pertaining to the public health in its relation to the public service, begs leave to submit as its report the following considerations :

Appreciating fully the vast importance of the trust reposed, your committee proceeded, as soon after the adjournment as was practicable, to familiarize itself with the existing status of the questions involved, and placed itself in correspondence with the officials of a large proportion of the representative medical organizations of the country, and also instituted an inquiry to ascertain the prospect of national health legislation during the current session of the Congress of the United States.

As a result of these undertakings, the following facts were made apparent :

1. That there is practical unanimity among the members of the medical profession in the belief that a national health service has come to be a public necessity, and that the medical societies of the several States of the Union and the State Boards of Health, almost without exception, have by stated resolution or otherwise essayed to draw attention to this all-absorbing topic, and to the singular and deplorably persistent disregard of our official representatives in the law-making bodies, for the manifest duty which they owe to their constituencies, in their capacity as the promoters and conservators of the public welfare and happiness, in view of the constantly

increasing dangers from infectious diseases by which the people of this great land are menaced, and which the magnificent accomplishments of science in recent years have demonstrated to be within control, when properly directed and systematic methods are employed.

2. Your committee ascertained that two bills, designed to correct this defect in public affairs, had been introduced during the first week of the current session of Congress in both houses, and referred respectively to the Committee on Epidemic Diseases of the Senate and the Judiciary Committee of the House of Representatives.

These bills, although calculated to effect the same general purpose, differed widely as to the means proposed. One, presented by the Chairman of the Senate Committee (Senator Harris), to which both were referred, was a practical re-enactment of the act of March 3d, 1879, establishing a National Board of Health. Under its provisions a National Board was to have been constituted to consist of seven members—viz., three scientists at an annual salary of \$5000, and a representative from each of the following departments of the public service: the Army, Navy, Marine Hospital Service, and the Department of Justice. This Board differed from the original Board, in the important fact that the entire service was to be accredited to the Treasury Department and placed under the supervision of the Secretary of the Treasury.

The other bill, introduced in the Senate by the Hon. John Sherman, was the result of a movement inaugurated by the American Medical Association at its meeting in June, 1891, and was formulated by the committee of that body appointed for the purpose. The proposition was therein made to establish a governmental Department of Public Health, to be presided over by a Secretary of Public Health, who was to be a member of the Cabinet of the President, with privileges and power equal to those of other Cabinet officers.

This bill in its provisions made a quixotic attempt to define specifically and with particularity the character of the subjects of investigations and functions of the proposed department—a field which, it must be acknowledged, it is obviously impossible to comprehend by the phraseology of a statute law.

Another, and what seemed to your committee fatal objec-

tion to this proposed measure, was the fact that by its plan of organization the vicissitudes of partisan politics, with the various mutations and circumstances incident thereto, could not be separated therefrom, and must of necessity be a material factor in the disposition of its affairs.

However, it soon appeared that the intense rivalry existing between the factions representing these bills would inevitably result in deferring any legislative action upon the subject whatever; and when information was obtained by your Committee to the effect that the distinguished Chairman of the Senate Committee on Epidemic Diseases had flatly declared that no such bill would be reported by that committee during the session. Hence it was deemed unnecessary to prosecute our inquiries or efforts to any further extent, and that we should composedly await the occurrence of some calamitous circumstance (soon to come) which would serve to awaken renewed interest, and once more rudely shake the slumbering propositions from their accustomed pigeon-holes.

It is noteworthy that later on, during the session (March 24th), this same senator, above-named, superseded his original bill for a National Board of Health by the introduction of another bill, which by its provisions committed to the Marine Hospital Service, as a division of the Treasury Department, "the administration of a coast quarantine and of that which relates to interstate commerce during a pestilence brought from foreign lands," thereby neglecting and abandoning entirely all effort to regulate that most important department of the general subject, which relates to the promotion of the health and comfort of the people of the interior of this great country, and their protection from the deadly infections which are not of exotic origin, and against which all measures relating simply to external quarantine cannot possibly avail.

When the fact is considered that statistical records demonstrate that upward of 500,000 persons annually die within our borders from preventable diseases, it is our judgment that an act that merely provides for the protection of our seaports from the epidemics which may chance to be imported from foreign shores, and neglects to make provision for defence against the ravages of the numerous epidemics and endemics

indigenous to our soil, is unwarrantably limited in its scope and incomprehensive in the extreme.

In the early autumn of the year just passed, and owing to our present system of immigration, that universally dreaded pestilence, Asiatic cholera, appeared in the Port of New York. It is unnecessary to state to this well-informed assemblage that that circumstance developed at once a condition of popular consternation and apprehension to a degree most difficult to measure and define.

The aroused public, with grave concern, eagerly sought the opinion of the eminent and expert members of the medical profession as to the imminent danger by which the country was threatened, and the best means for protection. The imperfect and non-protecting condition of our quarantine and sanitary laws was at once recognized, and the President of the United States was appealed to to restrict or suspend immigration, and to direct the imposition of a quarantine detention of all suspected vessels arriving in our ports. The universal public sentiment, as indicated by the public press, and the expressions of all classes and organizations, professional and otherwise, was in favor of the assumption by the national authorities of the entire quarantine establishment on our coasts. The President issued his now famous order for a universal twenty-day quarantine under the direction of the Marine Hospital Service, whereupon there arose a conflict between the State and national authorities in the Port of New York as to questions of priority in management, which alone and separately in our opinion furnishes a sufficient argument, if needed, to demonstrate the imperative necessity for a legislative revision and a comprehensive reconstruction of all the laws which relate to this all-important subject, to the end that the power to administer under their provisions may be centralized in the Government of the nation.

In his annual message to Congress, the President, with the apparent approval of the entire country, made the suggestion that the regulation of quarantine should be taken into the absolute control of the national authorities, and in the early days of the present session several measures embracing that idea were introduced and referred.

Your committee does not deem it necessary to discuss these propositions in detail, but will only state that in each of them the scheme embodied contemplated the entire assumption by the Federal authorities of supremacy in the arrangement and management of the quarantine establishment, and the relegation of the present system of State supervision. When the subject was, quite recently, called up for consideration in the Senate, the Harris bill (No. 2), heretofore referred to, took precedence, and, on the "better than none" idea, we say, happily, was passed by that body almost *nemine contradicente*.

When it reached the House it was so amended as to remove from it its character of a national quarantine bill, but, almost while we are in session, the Senate has refused to concur in these amendments, and from the tone of the discussion this day reported by the public press, it seems likely that Congress, during the present session, if well supported by the medical profession throughout the country, will enact a law which will place the quarantine system directly and fully under the control of the National Government.

We would further state that it has seemed to us that the exigent nature of this condition of affairs is sufficient excuse for this somewhat extended review. We believe that our duty in the premises, and under our commission, would have been very imperfectly performed had we not taken the occasion to direct the attention of this great and influential Society to this peculiar situation ; and, in view of the foregoing statement, we offer for consideration, and respectfully move, the adoption of the following minute :

We, the Medical Society of the State of New York, in annual meeting assembled, view with the gravest apprehension and concern the imminent peril with which the people of the United States, and the diversified commercial interests therein, are menaced by the probable importation, or reawakening, of the cholera plague in the nation's maritime ports of entry, and, in that connection, desire to call to the attention of the public and its law-making representatives the dangerously defective condition of the existing quarantine, sanitary, and immigration laws, and to emphasize the direful consequences attendant upon neglect to provide for adequate defence by

suitable legislation during the current session of the Congress of the United States.

We also desire to promulgate the expression that, while an urgent necessity demands the prompt revision of the laws relating to external quarantine, it is equally pertinent to direct attention to the great and, we believe, greater questions affecting the health and well-being of the people of the interior of the vast domain which is subject to the disposition of the Government whose authority we acknowledge. It is strangely true that, although at times the public sentiment is aroused by the prospect of a pestilence of foreign origin, the numerous dreadful and deadly scourges from preventable diseases, epidemiological in character, entirely escape the public observation. Striking illustrations of this important fact may readily be observed by a contemplation of the overwhelming evidence presented by the statistics of mortality. The natural inference to be drawn from those premises indicates with the greatest precision the necessity for systematic regulation by a central health service, which, in our judgment, can be properly administered only by Federal authority.

In our representative capacity as the legally recognized exponent of the medical profession of the State of New York, we fully endorse the sentiments formally expressed by the New York Academy of Medicine, in favor of "such legislation as shall secure a protective system for this country, placed immediately and completely under Federal control."

Your committee would earnestly recommend that a committee of seven, to be composed of members of this Society, and which shall be designated as the National Quarantine Committee of the Medical Society of the State of New York, be appointed by the President during the current meeting, whose duty shall be to co-operate with a similar committee already appointed by the New York Academy of Medicine, in a determined effort to secure protective legislation before the adjournment of the present session of Congress.

Your committee in conclusion would also recommend that a telegram be at once sent to the senators from the State of New York and the Speaker of the House of Representatives, asking them to convey to the Conference Committee the earnest wish of the Medical Society of the State of New York,

that a bill giving the matter of quarantine entirely into the hands of the National Government be passed during this session.

Respectfully submitted,

A. WALTER SUITER,

Chairman,

D. B. ST. JOHN ROOSA,

LUCIEN HOWE.

THE NATIONAL QUARANTINE LAW.

AN ACT GRANTING ADDITIONAL QUARANTINE POWERS AND
IMPOSING ADDITIONAL DUTIES UPON THE MARINE-HOSPITAL
SERVICE.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful for any merchant ship or other vessel from any foreign port or place to enter any port of the United States except in accordance with the provisions of this act and with such rules and regulations of State and municipal health authorities as may be made in pursuance of, or consistent with, this act ; and any such vessel which shall enter, or attempt to enter, a port of the United States in violation thereof shall forfeit to the United States a sum, to be awarded in the discretion of the court, not exceeding five thousand dollars, which shall be a lien upon said vessel, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States ; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 2. That any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer of the United States at the port of departure, or from the medical

officer where such officer has been detailed by the President for that purpose, a bill of health, in duplicate, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel, and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of the said vessel, its cargo, passengers, and crew ; and said consular or medical officer is required, before granting such duplicate bill of health, to be satisfied that the matters and things therein stated are true ; and for his services in that behalf he shall be entitled to demand and receive such fees as shall by lawful regulation be allowed, to be accounted for as is required in other cases.

The President, in his discretion, is authorized to detail any medical officer of the Government to serve in the office of the consul at any foreign port for the purpose of furnishing information and making the inspection and giving the bills of health hereinbefore mentioned. Any vessel clearing and sailing from any such port without such bill of health, and entering any port of the United States, shall forfeit to the United States not more than five thousand dollars, the amount to be determined by the court, which shall be a lien on the same, to be recovered by proceedings in the proper district court of the United States. In all such proceedings the United States district attorney for such district shall appear on behalf of the United States ; and all such proceedings shall be conducted in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws of the United States.

SEC. 3. That the Supervising Surgeon-General of the Marine Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, co-operate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations of such boards and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the

District of Columbia ; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place ; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in his judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them ; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose. The Secretary of the Treasury shall make such rules and regulations as are necessary to be observed by vessels at the port of departure and on the voyage, where such vessels sail from any foreign port or place to any port or place in the United States, to secure the best sanitary condition of such vessel, her cargo, passengers, and crew ; which shall be published and communicated to and enforced by the consular officers of the United

States. None of the penalties herein imposed shall attach to any vessel or owner or officer thereof until a copy of this act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days, in the port from which said vessel sailed ; and the certificate of such consul or consular officer over his official signature shall be competent evidence of such posting in any court of the United States.

SEC. 4. That it shall be the duty of the Supervising Surgeon-General of the Marine Hospital Service, under the direction of the Secretary of the Treasury, to perform all the duties in respect to quarantine and quarantine regulations which are provided for by this act, and to obtain information of the sanitary condition of foreign ports and places from which contagious and infectious diseases are or may be imported into the United States, and to this end the consular officer of the United States at such ports and places as shall be designated by the Secretary of the Treasury shall make to the Secretary of the Treasury weekly reports of the sanitary condition of the ports and places at which they are respectively stationed, according to such forms as the Secretary of the Treasury shall prescribe ; and the Secretary of the Treasury shall also obtain, through all sources accessible, including State and municipal sanitary authorities throughout the United States, weekly reports of the sanitary condition of ports and places within the United States, and shall prepare, publish, and transmit to collectors of customs and to State and municipal health officers and other sanitarians weekly abstracts of the consular sanitary reports and other pertinent information received by him, and shall also, as far as he may be able, by means of the voluntary co-operation of State and municipal authorities, of public associations, and private persons, procure information relating to the climatic and other conditions affecting the public health, and shall make an annual report of his operations to Congress, with such recommendations as he may deem important to the public interests.

SEC. 5. That the Secretary of the Treasury shall from time to time issue to the consular officers of the United States and to the medical officers serving at any foreign port, and otherwise make publicly known, the rules and regulations made by

him, to be used and complied with by vessels in foreign ports, for securing the best sanitary condition of such vessels, their cargoes, passengers, and crew, before their departure for any port in the United States, and in the course of the voyage ; and all such other rules and regulations as shall be observed in the inspection of the same on the arrival thereof at any quarantine station at the port of destination, and for the disinfection and isolation of the same, and the treatment of cargo and persons on board, so as to prevent the introduction of cholera, yellow-fever, or other contagious or infectious diseases ; and it shall not be lawful for any vessel to enter said port to discharge its cargo, or land its passengers, except upon a certificate of the health officer at such quarantine station certifying that said rules and regulations have in all respects been observed and complied with, as well on his part as on the part of the said vessel and its master, in respect to the same and to its cargo, passengers, and crew ; and the master of every such vessel shall produce and deliver to the collector of customs at said port of entry, together with the other papers of the vessel, the said bills of health required to be obtained at the port of departure and the certificate herein required to be obtained from the health officer at the port of entry ; and that the bills of health herein prescribed shall be considered as part of the ship's papers, and when duly certified to by the proper consular or other officer of the United States, over his official signature and seal, shall be accepted as evidence of the statements therein contained in any court of the United States.

SEC. 6. That on the arrival of an infected vessel at any port not provided with proper facilities for treatment of the same, the Secretary of the Treasury may remand said vessel, at its own expense, to the nearest national or other quarantine station, where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo ; and after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to

any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities the Secretary of the Treasury may direct vessels bound for said ports to undergo quarantine at said State or local station.

SEC. 7. That whenever it shall be shown to the satisfaction of the President that by reason of the existence of cholera or other infectious or contagious diseases in a foreign country there is serious danger of the introduction of the same into the United States, and that notwithstanding the quarantine defence this danger is so increased by the introduction of persons or property from such country that a suspension of the right to introduce the same is demanded in the interest of the public health, the President shall have power to prohibit, in whole or in part, the introduction of persons and property from such countries or places as he shall designate and for such period of time as he may deem necessary.

SEC. 8. That whenever the proper authorities of a State shall surrender to the United States the use of the buildings and disinfecting apparatus at a State quarantine station, the Secretary of the Treasury shall be authorized to receive them and to pay a reasonable compensation to the State for their use, if, in his opinion, they are necessary to the United States.

SEC. 9. That the act entitled "An act to prevent the introduction of infectious or contagious diseases into the United States, and to establish a national board of health," approved March third, eighteen hundred and seventy-nine, be, and the same is hereby, repealed. And the Secretary of the Treasury is directed to obtain possession of any property, furniture, books, paper, or records belonging to the United States which are not in the possession of an officer of the United States under the Treasury Department which were formerly in the use of the National Board of Health or any officer or employee thereof.

SANITATION, MORBILITY AND MORTALITY STATISTICS OF THE NAVY.

REPORT OF THE CHIEF OF THE BUREAU OF MEDICINE AND SURGERY FOR THE YEAR 1892.

THE statistics comprised in this report are for the year 1891. It opens with a summarized account of the condition of the hospitals and other quarters for the sick, and the navy yards and stations, deduced from the reports in detail by the officers in charge, which follow.

Widdow's Island Station, Penobscot Bay, Me., appears to be maintained with special reference to its need as a place of resort for vessels infected with yellow-fever. Reference is made to the cases of the *Boston* and *Yantic*, sent there after disinfection at the Brooklyn Navy Yard, in January, 1889, where they were exposed to a temperature several degrees below 32° F. No cases of yellow-fever have occurred on board said ships since.

The naval hospitals and navy yards are, with few exceptions, reported to be in excellent condition. The Brooklyn Naval Hospital in particular, which is one of the oldest and largest, has been thoroughly overhauled and greatly improved.

Medical Director Albert L. Gihon reports that

“The work of extending the professional facilities of this hospital and improving its interior arrangements has been continued, until it is now believed to be as well appointed for its purposes as can be desired. The proposed apparatus for hot air, vapor, and medicated baths, referred to in my last annual report, have been introduced, and have proved most serviceable and satisfactory. There have been but four cases (erysipelas) requiring isolation during the year, but similar exceptions cannot always be expected, and a disinfecting oven or other provision for the effective cleansing of infected clothing and bedding is a desirable adjunct to the annex hospital for contagious diseases, which has been put in thorough order for any emergency.

"During the year ended 374 cases of disease and injury have been treated in this hospital, of which number 64 still continue under treatment. Of the 310 which have been discharged, 255, or 82.2 per cent, have been returned to duty, and 35, or 11.2 per cent, discharged from the service at their own request or by recommendation of boards of medical survey, the disabilities in a majority of these cases having existed prior to enlistment. Three patients were transferred to other hospitals for their greater personal convenience.

"There have been 8 deaths during the year, a percentage of 2.58 of admissions, the fatal terminations being incident to the following diseases: (1) pneumonia, (2) chronic gastritis with intercurrent pneumonia, (3) phthisis pneumonica chronica, (4) pleuritis, with phthisis pneumonica chronica, (5) febris remittens, (6) cirrhosis hepatis, (7) ambustio, (8) morbus valvularum cordis, with chronic nephritis."

In resigning his charge of this hospital, April 1st, 1892, Dr. Gihon remarks that he terminates "an experience in hospital direction which began in January, 1880, with the U. S. Naval Hospital at Norfolk, Va., and has continued, with only the intermission of my service as a member of the Board of Inspection of the Navy, as director in charge of the naval hospitals at Washington, D. C., Mare Island, Cal., and Brooklyn, N. Y., I may be permitted, therefore, to speak with some understanding of the circumstances of hospital administration.

"The Brooklyn Naval Hospital is unquestionably the most thoroughly equipped, as it is the largest establishment of its kind, in the Navy, and may deservedly claim rank in appointments, sanitary conditions, and professional resources and results with any first-class institution in New York. Although erected many years before modern domestic apparatus and conveniences were devised, its spacious halls, high ceilings, numerous windows, open fireplaces and air-shafts accomplish all the purposes of thorough illumination and ventilation, while it is well heated by an apparatus of recent introduction. The existing arrangement by which the steam supply is subordinate to that for the adjoining naval laboratory is objectionable, and should be remedied. The new mess-rooms established on the site of the old laundry in the basement of the north wing, and the adjacent general kitchen, only require

overhead fans or 'punkas' operated by a small engine, fortunately in situation, to be made cool, comfortable, and free from flies during the heated period of the year.

"The subdivision into small wards, containing from two to a maximum of seven patients, each of whom has 1100 cubic feet of unobstructed air space, permits the classification of diseases and injuries, the isolation of noisy, offensive, and moribund patients, and the special treatment of chronic and critical cases. The 'annex hospital' in a separate building, at a distance of 200 feet, affords ample facilities for the accommodation and treatment of all contagious diseases. A room for necropsies in this building permits this work to be done, and the bodies of the deceased to be prepared for burial from the neighboring mortuary chapel without any disagreeable and harrowing suggestions to other inmates. A disinfecting oven, as before suggested, is required to permit the thorough disinfection of bedding and clothing.

"A plant for the electric lighting of the buildings and grounds is very necessary for better illumination at night as a matter of economy, and further because the gas piping concealed in the walls and under ceilings and floors has so deteriorated by age that a continual leakage from these worm-eaten pipes, especially at times when inclement weather compels the closing of doors and windows, appreciably vitiates the air by gas odor.

"The floors of ten of the small wards have been successfully covered with narrow strips of hard pine, oiled and shellacked. I recommend that all the remaining wards and corridors on both floors be similarly covered, obviating the necessity for the use of paint. The bath-room and water-closet floors should be all laid in cement, removable wooden gratings, affording protection for the bare feet, and the walls should be tiled to a sufficient height.

"I may be pardoned, in severing my connection with this hospital, once more suggesting its peculiar fitness for the establishment therein of a naval medical school of practice for the instruction in higher medicine of the young entrants into the medical corps. The hospital, together with the adjoining naval laboratory, possesses the requisite plant, and the senior medical officers, in addition to their several duties, can give

advanced instruction in (1) naval and military hygiene ; (2) in chemical analysis ; (3) in microscopy and bacteriology ; (4) in electro-therapy, ophthalmoscopy, laryngoscopy, etc.; and (5) in the special duties of naval medical officers, particularly physical examinations. Should all the chemical analysis required in the Navy be done at the laboratory, for which it is so admirably adapted, it would give excellent opportunity for practical exercise and the immediate employment upon scientific duty would give a bent in the right direction to the young men entering the service, and this without additional expense to the Government, but with a saving of expense for skilled inspection. A naval medical school of practice can thus be instituted which might rank with any in Europe in the value of its results."

On the Naval Hospital at Chelsea, Mass., Medical Director C. J. Cleborne reports :

"The number of patients treated during the year was 190 ; of these 19 were continued from 1890, 171 were admitted, and there are 12 remaining. Nineteen cases were invalided, 2 were transferred to other naval hospitals, 1 died, and 156 were cured and returned to duty. Of the total number of 190 sick, there were 34 due to local causes, 31 were due to climatic influences, and 25 were diseased prior to enlistment.

"The daily average number of patients was $17\frac{348}{365}$; average duration of treatment, $34\frac{93}{90}$ days ; average cost per patient (including cost of repairs and all expenses of hospital), $1.93\frac{5950}{553}$; daily average cost of subsistence, $45\frac{9173}{11747}$ cents ; total amount expended, \$12,706.79. The total number of 'sick days' was 6553.

"The main hospital building underwent extensive repairs in 1888-89, and is at present in fair condition."

At the Boston Navy Yard, the condition of the dispensary, as described by the medical officer in charge, is despicable—decayed, damp, and dark, and on a noisy thoroughfare. A new one, in a better place, is required and urged.

And the naval prison at this station, completed during the latter part of the year 1887, appears to have been constructed with but little regard to the health of those who are so unfortunate as to be confined therein. It is so surrounded by and in such close proximity to other buildings as to shut out the

light. The "exercise yard," surrounded by a high wooden enclosure, fifty by thirty feet, is so encroached upon by the steps from the prison, that the space to exercise in is reduced to a circle of only twenty-five feet in diameter, around which exercise is taken by walking an hour every day, except Saturday and Sunday. "Saturday is excepted, it being bathing day, and all hands after bathing are given their bags and boxes to overhaul their clothing. No other work of any kind is done by the prisoners, and no tools of any description are allowed. They are now exercised in two parties, one half of the entire number in each, chained together in pairs. This exercise is taken in good weather in the circle, and in the corridors in bad weather. Tobacco, not to exceed a pound a month, is allowed for chewing only ; no prisoner can smoke. A local missionary society supplies books and magazines, and a few of the prisoners subscribe to certain daily papers.

"The prison interior has forty-two cells of 10 feet by 5 feet 11 inches floor area, and the height of the ceiling about 15 feet. The cells are in three parallel rows, two of which look out upon the windows, and the middle row looks out upon the dark passageway separating it from the outer row opposite ; while the outer rows of cells are fairly well lighted, the inner row is quite dark. This difficulty is met by shifting the prisoners to other cells once a week, so that each one takes his turn in the dark cells. It may be said therefore that every prisoner spends one third of his term of imprisonment in a cell too dark for the preservation of health. To correct this condition, the inner row of cells should be removed ; this, however, would reduce the capacity of the prison one third. No provision is made for serious illness or the accommodation of prisoners with contagious or infectious disease, and the prison has no place where isolation could be effected. When the prison was arranged authority was asked and granted 'to build up the space of two cells as one cell to provide for a prisoner who is taken sick.' Serious cases have to be sent to the naval hospital at Chelsea, and an epidemic in the prison would effect a jail delivery. The capacity of the prison is 42. In July, 1889, there were 48 prisoners, which necessitated doubling the occupants of several cells. This continued for a few days, when the Department ordered the release of

9 men, thus depleting the prison sufficiently. At present (August) there are 32 prisoners. Of this number one is undergoing a sentence of five years, having completed over two years. The longest period during which one has remained in prison has been two years and three months out of a three years' sentence, and then the prisoner was pardoned."

On the Naval Hospital at Norfolk, Va., Medical Inspector Thomas N. Penrose reports :

"The total number of patients treated during the year was 232. Of this number 190 were admitted, while 42 were carried over from the year 1890. Twenty-six cases were invalidated from the service, 7 were transferred to other hospitals, 3 died, and 163 were returned to duty, leaving 33 under treatment at the end of the year. Thirty-one were surveyed, including those whose terms of enlistment had expired, but who were nevertheless surveyed in order to have a complete record of their cases. Seven cases were attributable to causes existing previous to enlistment, and 42 were due to climatic influences. There were 11,505 sick days, of which 2909 were venereal.

"The daily average of patients was $31\frac{5}{9}$; the average duration of treatment was $50\frac{108}{228}$ days. The daily average cost per man, including all the expenses of the hospital, was $\$1.35\frac{6636}{11505}$, and the daily average cost of subsistence was $\$0.27\frac{9043}{19854}$.

"Of the deaths, 1 resulted from phthisis (the patient being received from another hospital when in an advanced stage of this disease), 1 from albuminuria, and 1 from typhoid-fever, which case was progressing favorably until complicated with urinary infiltration. The particulars of this case were reported in my returns for third quarter, 1891.

"Typhoid-fever was endemic in Portsmouth, Va., during the latter part of the year, and the number of cases of this disease treated in this hospital was 9. The treatment adopted was Brand's method modified. When the temperature reached 103° F. Tienissen's gradually cooled bath was given, and always under the immediate supervision of a medical officer, whose duty it was to carefully observe and note the temperature of the patient and of the water, removing the patient from the bath when his temperature had fallen to 100° F. or 100.5° F. During the bath gentle friction over the whole

surface of the body was practised, and when removed from the water the patient was quickly dried and wrapped in sheets and blankets. As the bath was brought to the bedside there was no disturbance nor excitement attending it, and afterward the patient, as a rule, quickly fell into a refreshing sleep, the temperature invariably falling to normal.

“Excluding the case complicated by urinary infiltration (where death was hastened if not entirely due to that), the result of this treatment was complete recovery in every case.”

On the Naval Hospital at Philadelphia, Pa., Medical Director A. C. Gorgas reports :

“The conditions affecting the hygiene of this station, including the naval home, vary but little from year to year.

“The average population of the Naval Home during the year was about 245, including the Marine Guard, the officers and their families, and the attendants. At the hospital that of the officers, attendants, etc., was 32, the average daily number of patients being 27.8. Of these last nearly three fourths came from the home. There were twelve deaths during the year, as follows—viz.: abscessus cerebri, 1 ; abscessus, 1 ; pneumonia, 2 ; phthisis pneumonica chronica, 2 ; stenosis intestinalis, 1 ; œdema pulmonum, 1 ; ulcus ventriculi, 1 ; obstructio intestinalis, 1 ; morbus valvularum cordis, 1 ; and ruptura cordis, 1. All these were beneficiaries, and their average age was seventy years.

“The average number of beneficiaries was about 180. As a rule these old men appear to lead contented lives ; some of them find employment at light work outside in the town, some occupy billets at the home, as gate and door-keepers, assistants in the laundry, in charge of the baths, and one as letter-carrier. One or two turn an honest penny at sailmakers’ work. In fine weather they stroll about the grounds, and when it is warm they assemble in the summer houses and on the benches beside the walks.

“I am glad to be able to correct an erroneous impression that has been held and expressed, that the beneficiaries were, as a rule, intemperate. I doubt if men of the same class chosen from any vocation and exposed to the same influences would furnish a better record.

“There were 371 cases under treatment at the hospital in

1891 ; 23 of these were admitted during the previous year or earlier, and 27 were carried on into 1892. Of these 10 were discharged from the service, 5 were transferred to the Government Hospital for the Insane at Washington, D. C., and, as already recorded, there were 12 deaths.

“ The average age of the beneficiaries at the home is sixty-nine years, as recorded, but it is likely that the true average exceeds this, as sailors, in order to prolong their period of active service, are in the habit of representing themselves as younger than they really are.”

On the Naval Training Station, Newport, R. I., Surgeon C. A. Siegfried reports “ that the *Richmond* is poorly adapted for this business, being too low-decked and dark, and having no bathing and washing facilities for the boys in cold weather. The medical duties are the same as in cruising ships, excepting that the sick requiring beds are brought to the sick quarters on the island.

“ Some improvements have been accomplished on the island, in forming walks, in abolishing an open privy near the causeway, and in repairing drains. There is lacking in nearly all the buildings ventilating pipes direct from the traps under sinks and water-closet bowls, and some evaporation must be constantly going on into these buildings from the pipe linings from these sinks and bowls to the foundation walls where the vent pipes are—on the whole, quite a large area. No additional buildings or facilities for the better training and management of the apprentices have been furnished us, and we still labor under the defects of limited room for the multifarious requirements usually assumed to be necessary in this work of making of these apprentices good material for the Navy.

“ A system of measurements, to note quarterly each apprentice's physical development, was begun in November.

“ The physical exercises at the drill-room form a part of the daily routine, and are designed to develop the body evenly, every muscle and all the functions, and not any one part at the expense of another or of the whole; and are carried to no excess. They are, on the whole, a recreation and an enjoyable part of the day's work. It promises well to attain the end in view, and has in part been inaugurated because of the type of the modern man-of-war without masts or sails. It is

adopted from the Swedish gymnastic movements, and includes various detailed exercises of muscles, of the breathing, running, jumping, etc., with the intention of reaching all parts of the body in a mild stimulant fashion. It is intended that the apprentices shall remain here one year. With the quarterly measurements physical progress is noted, and if need be such groups of exercises corresponding to groups of defects as found by the measurements are given prominence in the work.

"*The water supply* remains as in last report. The tube wells go to depths not over 90 feet, the pumps being below the surface of the land, so that the level of the water rising in the tubes comes within pumping distance. At the pumping station, one of the lowest-lying levels of the island, are two tubes, and these drain about a sixth of the island, the low levels on the northern side. The quantity of water now available from the three tube wells, one smaller one being on the mound behind the new War College building, averages 40,000 gallons per diem. With proper conservancy, and the use of sea water for flushing purposes, the supply is ample for a thousand persons, allowing 40 gallons per head. If it should become necessary to provide a larger supply, more wells could be driven on the lowlands on the east side of the island, where the gardens are now, or an evaporating apparatus could be set up on the bay shore.

"For reasons stated in an official communication to the commanding officer during the past summer, and which was transmitted to the Navy Department, the Newport city water supply in its present polluted state should not be admitted to the island. It may be well to restate my objections to this supply. It is a surface drainage water, the watershed being in the suburbs of the city, composed of fertile farms and pastures and serving also for night-soil dumping grounds. Repeated analyses for years past have condemned it, the city Board of Health has publicly advised boiling and filtering before using it, and with good reason many physicians believe that intestinal disorder, somewhat common in the city, is due to it. I have gone over the watershed and examined the collection basins, and find the bottoms of the latter at varying depths composed of black organic mud, and answering in many respects all the purposes of a culture bed for micro-

organisms ; flowing into the basins are trickling streams from barnyards and overfull privy vaults. After heavy rains the inlet streams to the basins are brownish and offensive ; ordinarily they look clearer. The average depth of the main large pond is not over eight feet, and the conditions all favor and insure a warm breeding tank for lower forms of animal and vegetable life. The watershed is never free of animal dejecta. From the crest of the watershed to the ponds is not over two and one half miles. I subjoin herewith an authoritative analysis made by order of the City Council by Professor Drown, of the Massachusetts School of Technology, in September, 1891.

*"Analysis Newport City Water Supply (in 100,000 parts).—*Appearance : Green scum, green sediment ; color, 1.8 ; cyclops. Odor : Mossy, mouldy, cold ; barny and unpleasant when hot. Residue : Total, 12.80 ; loss on ignition, 4.25 ; fixed, 8.55. Ammonia : Free, .0446 ; albumen, .1310 (.1272). Chlorine, 1.75. Hardness, 3.3. Nitrogen : as nitrites, .0002 ; as nitrates, .0070. Bacteria per ccm. ranged from 500 to 7000, in one specimen 50,000 ; vast amount of low life, animal and vegetable ; blue, green algæ, etc. This water is at once seen to be a badly polluted water. It is a soft organic water, and very liable to act vigorously on lead pipes ; and, as a matter of fact, corroded lead pipes are common in Newport, I am told by a member of the Board of Health.

"By way of happy contrast I am able to place beside this picture of Newport City water the water in use on this island obtained from tube wells. The chemical examination was principally made by Assistant Surgeon Robert Kennedy, whose industry and interest in the work must be commended. Here, instead of a surface drainage water, we have a source from 60 to 90 feet deep, the rain percolating and filtering through that amount of soil ; a water moderately hard, from the mineral substances in solution, and with no organic matter or impurity. The criticisms I have to make relate to the lack of sand and gravel filtration before distribution from reservoir, and the admixture at times of a small surface pond collection in the region of pumping station. The filtration recommended would remove some hardness and the slight vegetable growths incident to storage.

*“ Analysis of Water—Coasters Harbor Island Supply, December, 1891 (in 100,000 parts).—*Appearance : Slight haze ; sediment, mineral, light-colored. Odor : None. Taste : iron. Residue : Total, 18.43 ; volatile, 5 ; non-volatile, 13.43. Hardness : Total, 9.86 ; temporary, 2.72 ; permanent, 7.14. Chlorine : 1.515 ; as chlorides, 2.50. Nitrogen : as nitrates and nitrites, slight trace. Ammonia : slight trace. Bacteria per ccm., 230 ; reaction slightly acid. Inorganic substances present : lime, sodium, iron as pyrites and carbonate, magnesium, chlorine, sulphuric acid, and carbonates.

*“ Prevailing Diseases and Climatic Effects.—*The station has been free of infectious, exanthematous, and contagious diseases. Two deaths have occurred—one the case of an elderly man, of apoplectiform paralysis ; the other from pneumonia, following grippe, in the person of a colored messman living ashore in an undrained section of Newport. Nor have there been any serious accidents. There have been some severe cases of rheumatism, and a vast amount of disorder of the air passages and tonsils. Many of the boys coming here are for the first time in their lives subjected to a New England sea-coast climate, and suffer much with throat disease.

“ The diseases common to this region, due to, or at least aggravated by, the climate, are rheumatism, neuralgia, and catarrh, with a tendency to lowered energies of body and mind. A prominent local practitioner is my authority for the statement that all Newporters have trouble with their throats. The climate appears to be the reverse of tonic and bracing, and has a tendency to the production of local persistent congestions. That these congestions and inflammations of the air passages and intestinal tract are altogether due to meteorological conditions I don't believe, as there are in many sections of Newport damp, undrained parts, with high level of subsoil water ; and then the town is unfortunate in regard to its water supply. At this island and station we do not have intestinal disorders nor a great deal of persistent congestive disease, and for the past two years no exanthematous or typhoid diseases. In warm weather our sick list is small—quite the contrary in the city ; with the advent of the colder months, when the raw, cold winds constantly sweep over us from all sides, the medical department has need of all its

facilities in attending to the wants of the sick and complaining, and at this time the number requiring help and advice averages as many as forty per day."

The Tenth Annual Report of the Naval Museum of Hygiene, by Medical Director Philip S. Wales, shows the urgent need of a new and suitable building. "The present one is illy constructed for the purpose, and is so restricted in space that it is impossible to find room for the exhibits on hand, much less to group or display them in the most needful and accessible way for inspection and study. A number of exhibits are now stored in the lumber-room, cellar, and yard. Others are crowded into corners, piled one on another, or clustered on the stairway.

"The register in which the exhibits are recorded shows accurately the varying vicissitudes in its progress and growth since its foundation in 1882.

"If the rate of growth shown continues, and there is no tangible reason for supposing otherwise, the collection, instead of forming a hygienic museum, would rather form a hygienic storehouse. In the latter event the inaccessibility of the collection would effectually destroy its usefulness and therefore remove the reasons for its continuance as a means of hygienic instruction.

"This Museum, one of the three similar institutions in the world, the other two being one in London and one in Berlin, is superior to them in value and capabilities of indefinite expansion into a national centre of practical and scientific teaching.

"The foreign museums are supported and fostered both by national and private munificence, and are destined in the near future to become an honor and a pride to the two great peoples that have founded them. Similar recognition by general national assistance should be accorded to this Museum, but, as a matter of fact, since the first appropriation in 1882, no governmental aid has been accorded it, and the present value of the Museum, however much or little it may have, is the result in great part of the private enterprise of those interested in its success.

"Official application was recently made for the allotment of the now vacant buildings of the Naval Observatory for the

purposes of the Museum, but this failed of success, and as it appears there is no other available public building that can be obtained for the object intended, it is suggested that in the next annual estimates of appropriations, Congress be asked for the requisite funds for the erection of a building suitable for the occupancy of the Museum on some portion of the public grounds near the Army Medical Museum. The cost of such a structure would not exceed \$100,000.

“ The intense heat of the past summer having rendered the work in the chemical, bacteriological, and photographic rooms, which are located under the roof, impossible, advantage was taken of this opportune moment to turn the entire force of the Museum to the preparation of a catalogue of the exhibits, which has happily been finished. It will be printed some time in the fall, and it is hoped and believed that the friends of the Museum will be stimulated by its appearance to renew their exertions in its behalf ; also that exhibitors and inventors will see the advantage of displaying in and making their inventions and devices known through the Museum. Moreover, the catalogue will induce many persons who have heretofore known of its value and extent to lend their aid in furthering its objects and aims. This is all the more desirable and necessary as an inspection of the catalogue will show that the Museum is sadly deficient under several heads of objects and illustrations that would be exceedingly interesting and instructive.

“ The preparation of a catalogue, of the library, which will greatly facilitate reference to the books, will be continued whenever opportunity offers for the present small force of assistants to be drawn from the daily routine of duty.

“ The number of books received since the last annual report is 1939, mostly official reports, and as no purchase of books has been made by the Bureau for several years, there is a total lack of recent and current publications of every description. In this connection I will haste to suggest that the value of the library would be greatly enhanced if this defect should be corrected as soon as possible, at least in the direction of bacteriology and hygiene, and with a view of facilitating the action of the Bureau in this matter I will have prepared, as I have several times heretofore done, a list of the most recent

publications on these two important branches of science. During the past year 399 volumes have been put in durable and neat bindings. The total number of books now on the shelves reaches 12,010 volumes—10,171 bound volumes, 1839 unbound.

“ In the bacteriological section of the Museum continuous observations have been made during the year on Potomac water, and the different forms of organic life contained in it have been determined and photographed. The photographs, however, are not of a high order of artistic merit, inasmuch as the only apparatus possessed by the Museum is an old rickety camera and a worn-out microscope, illy adapted to fine work. I would therefore suggest that there be purchased a new outfit, such as is to be found in all governmental laboratories in the District engaged in scientific work. The single microscope of any value is a ‘Zeis,’ bought a number of years ago, which, as far as its objectives are concerned, is inferior to cheaper modern instruments that can be purchased in this country.

“ I take this occasion to renew my recommendation of last year for more medical officers and an additional laborer for general work. I would also recommend that a permanent appropriation of \$5000 per annum be asked for the purchase of books, exhibits, apparatus, etc., and for the support of a course of popular lectures by competent men on the various subjects pertaining to sanitary science. Such lectures are now delivered at similar institutions abroad, and are much praised by professional men and by those practically engaged in the manufacture and application of sanitary apparatus.

“ The remarks in last year’s report on the Chemical Department apply to this year.

“ The addition of a filter pump and a short-armed balance scale has added to the efficiency of the laboratory. The number of analyses made were 473, a number exceeding that of any previous year.

“ I urgently renew the recommendation made last year that the salary of the chemist be increased to at least \$1500 per annum.”

The Medical Corps had but two vacancies at the date of the report, and it was confidently anticipated that they would be filled before the end of the year.

It is the intention of the Bureau to enlarge the scope of the professional examination of candidates for admission and promotion, the advance of medical science necessitating the introduction of subjects now most important factors in medical education, but receiving little consideration a few years ago.

In order to thoroughly comprehend the subject-matter of such studies as bacteriology, pathology, physiological actions of drugs, and the scientific application of the principles of hygiene and quarantine, more extended knowledge of botany, geology, zoology, and physics is required ; consequently a greater knowledge of these branches will be exacted than heretofore.

The sick of the Navy during the year 1891 was 12,151, a decrease of 698, as compared with the previous year, when it was 12,849.

The sick were distributed as follows : 7934 on vessels afloat and receiving ships, 1733 in hospitals, and 2484 at navy yards and stations.

The daily average number of sick on vessels afloat and receiving ships was 162.29, which was practically the same as the previous year, when it was 161.86. The average number of days each case was under treatment was 7.46, while the previous year the average was 6.86 days.

The total number of sick days of the force afloat and on receiving ships represented a loss to the Government of 59,237 days, or an average of 162.29 men on the sick list daily. Of the 7934 patients on the sick-list, 6968 were returned to duty, 727 were invalided to hospitals, 46 were discharged from the service, 41 died, and 152 continued under treatment at the close of the year.

The number of deaths during the year 1891 was 91, distributed as follows : Thirty-four in the hospitals, 16 at the yards and stations, and 41 on vessels afloat and on receiving ships, making a ratio of 7.91 in a thousand. These figures, as compared with previous years, show a very gratifying result, being the lowest death-rate in the Navy for many years, and which can be attributed to the absence throughout the year of casualties and epidemic diseases.

The death-rate for the year 1888 was 12 ; for 1889, 18 ; for 1890, 9 ; and for 1891, 7.

The death-rate of the force afloat and on receiving ships was 4.67 in a thousand, practically the same as that of last year, 4.20 in a thousand (which rate is far below the average, as shown by the actuary tables of mortality).

Insane of the Navy.—There were 96 patients belonging to the Navy under treatment in the Government Hospital for the Insane, in the District of Columbia, during the year ending September 30th, 1892 :

Number remaining in hospital September 30th, 1891, 76 ; admitted during the year ending September 30th, 1892, 20 : total number under treatment, 96.

Number discharged during year ending September 30th, 1892 : Recovered, 7 ; improved, 1 ; unimproved, 2 ; died, 11 : 21.

Number remaining, September 30th, 1892 : Officers, 6 ; petty officers, enlisted men, and marines, 69 : 75.

IQUIQUE—ITS LOCAL CONDITIONS AND CLIMATE.

REPORT ON U. S. FLAGSHIP "PENSACOLA."

By GEORGE H. COOKE, Medical Inspector, U. S. Navy.

MARCH 11th, 1890, we sailed for Iquique, arriving on the morning of the 17th.

Iquique, situated in latitude $20^{\circ}12'$ S., is the principal seaport of the province of Tarapaca. Originally an insignificant fishing village, it has grown to a city of nearly 20,000 people, and its growth, existence, prosperity, and importance are due entirely to the silver ore mined and smelted in its vicinity, but more especially to the vast and valuable deposits of nitrate of soda, etc., in the pampas to the northward and eastward, the products of which find their principal outlet by way of this port. It is connected with Pisagua, on the coast 40 miles north, by a railway curving inland, 190 miles in length, from which branches lead to the different nitrate oficinas scattered near the line of the road. The greatest altitude attained is 3760 feet, at Negreiras, about 50 miles distant from Pisagua.

Vast quantities of iodine (a by-product) and nitrate of soda, the latter used mainly as a fertilizer and amounting to millions of quintals annually, are produced at these oficinas, by far the larger part of which is transported by rail to Iquique and shipped from that port. The first exportation occurred in the year 1830. From this time forward the industry steadily progressed until the revenue derived by the Chilian Government from this source prior to the recent civil war amounted to from \$10,000,000 to \$15,000,000 annually.

The view of the town and surrounding region when entering the harbor is by no means an agreeable or inviting one, and closer acquaintance does not serve to modify the impression produced by the forbidding appearance of the landscape. The country is a veritable desert, rainless, totally destitute of every vestige of vegetation, devoid of fresh-water streams, a mass of disintegrating rock and shifting sand, on which no article of food of any description is grown, provisions of every kind, and every necessary as well as luxury of life, having to be brought thither by sea. Similarly, fresh water is carried to the place from distant ports, added to which a plant was erected, and its distillation on a large scale commenced some years since. Recently Colonel North, the nitrate king, laid a line of lead pipe, 5 inches in diameter, from Iquique to some fresh-water springs in the interior, at a distance of 80 miles. The scheme has proved successful, and most of the water consumed is now obtained from that source. As this ruined the business of transporting the water from Arica by sea, in which a certain old lady had been profitably engaged, Colonel North generously purchased from her the water boats which she employed in the traffic, and, in addition, allows her £500 annually in compensation for the income which she formerly derived from the industry.

The city, built upon a plain of sand surrounded by hills 2000 feet in height, is the residence of the Intendente of Tarapaca, has its law and other courts, telegraph, cable, telephone and gas companies, churches, public schools, fire department, clubs, daily newspapers, five plazas, race-course, etc., commensurate with a place of its size, importance, and enterprise. The houses, usually one story in height, sometimes two, as in the case of public buildings and business establishments, are

constructed of wood, occasionally of galvanized iron, are often surmounted by "miradores," and are required by law to be painted yearly. The principal streets, which were formerly ankle-deep in sand, are 20 metres broad, macadamized with "ripio" mixed with lime, forming a hard roadbed, and to allay the dust are kept sprinkled with salt water, an ill-advised proceeding, for the reason that it not only produces a nasty, sticky mass, when wet, which adheres most tenaciously to the shoe-soles of pedestrians, and when dry and lifted as dust by the wind causes a smarting and burning of the mucous membranes owing to the fine particles of salt, but because it may in time become the source of disease from the decomposition of animal and vegetable matter. The sidewalks are laid in artificial stone, but owing to the deposits of mud before mentioned tracked upon them, they are slippery when moist, and rough and uneven when dry, thus rendering walking tiresome and disagreeable. The city has frequently suffered severely in loss of life and property from earthquakes, tidal waves, and fires. Hence the low style of buildings and the increased widening of the streets after a conflagration occurring in the more crowded parts of the city. The market, which is located in a building of some pretensions, covering a space 20 metres square and realizing a revenue of about \$100 per day, is well supplied with meats, fruit, fish, and vegetables of many kinds, and although prices rule high, they are not as exorbitant as might be expected when it is considered that every article of food, with the sole exception of fish, which are taken in the adjacent waters in the greatest abundance and variety, is brought from far-distant ports.

A broad, fine road about two miles in length, having an excellent paved walk for pedestrians on the seaward side, with stone benches at intervals for resting, and a tram-car line on the other, leads out to Cavancha, a small suburb on the beach to the south, where facilities for bathing are provided, and where picturesque pavilions, built out upon the rocks over the water, present inviting lounging places, with refreshments, liquid and solid, to order. It is a general and favorite resort for the inhabitants, especially in the evenings, when, with the road leading out to it, it presents quite an animated sight.

Despite the facts that there is but little attempt at drainage,

and that cleansing is but indifferently performed, the streets of Iquique present for the most part a neat and tidy appearance, and its sanitary condition is fairly good. And although the lower classes of the population live amid the most insalubrious surroundings, in abject poverty and squalor, seemingly revelling in personal uncleanness, they present generally a healthy, sturdy, robust, hardy physique, and are capable of enduring the extremes of labor and fatigue. It is by no means uncommon to see the "gremio" laborers about the Bodegas and custom house carrying upon their backs weights running from 200 to 400 pounds, and almost equalling in this respect their Hamal brethren of Constantinople. The comparative healthfulness of the place is no doubt due, first, to the extreme dryness of the atmosphere, a condition which obtains more especially in the region embraced in the nitrate deposits along this coast, and which serves to prevent to a great extent decomposition by the moisture contained in substances prone thereto, being rapidly absorbed by the air when exposed to it and thereby rendered dry and innocuous; second, to the influence of the southwest winds, which prevail along this part of the coast, and which, blowing fresh and pure from the ocean, speedily and constantly dissipate any noxious effluvia which might otherwise accumulate and breed disease; third, to the antiseptic qualities of the nitrate of soda with which the earth generally, throughout this region, is more or less impregnated, and which therefore serves to prevent or arrest putrefaction in animal matters deposited in the soil. It is this property of the nitrate mainly, conjointly with the dryness of the soil and atmosphere, which has preserved the mummies of the aborigines unchanged through the centuries, in this region at least, for, unlike the Egyptians, they did not embalm their dead to prevent decay. This is proven by the experience of those who have carried away mummies, or parts of such, from this locality, and who, neglecting the proper precautions, have discovered when the nitrate, owing to its deliquescence, has been extracted, that their "curio" has become offensive from ensuing putrefaction.—*Abstract of Report of the Chief of the Bureau of Medicine and Surgery, U. S. Navy, 1892.*

THE MEDALS, JETONS, AND TOKENS ILLUSTRATIVE OF SANITATION. SUPPLEMENT III.

(Continued from page 147.)

By Dr. H. R. STORER, of Newport, R. I.

SECTION XI. *Military and Naval Hygiene.*

THE UNITED STATES.

2055. Obverse. Bust, facing. Inscription: Dr. B. F. Stephenson Founder Of The Grand Army Of The Republic.

Reverse. The pentagonal star of the G. A. R. In upper angles: Fraternity — Charity — Loyalty In lower angles: twigs of laurel. Inscription: 25th Anniversary Of The G. A. R. | Decatur, Ill. April 6, 1891. White metal. 23. 37 mm. Edges milled. By W. H. Warner & Bro., of Philadelphia. In my collection. Dr. Stephenson has been till recently Surgeon-General of the Grand Army.

In addition to the medals, Nos. 1252-58, of Dr. General Joseph Warren (1741-75), of Boston, there is the following:

2056. Obverse. Within circle, the arms and motto of Massachusetts. Inscription: Massachusetts | (13 stars)

Reverse. Within laurel wreath tied by ribbon: Held | . . | Sep. 7th | — — | 1891 Inscription: 150th Anniversary of Warren | *** White metal. 21. 34 mm. Edges milled. By William H. Warner & Bro., of Philadelphia. In my collection.

Possibly under this head might be included the "identification" medals of the recent war, of which the following, brought to my attention by Mr. Henry Chapman, Jr., is an instance.

2057. Obverse. A list of battles.

Reverse. I. L. Welsh Ass't Surgⁿ 25th Rgt N. Y. Vns. (Stamped.) Tin. 19. 30 mm.

ENGLAND.

2058. Obverse. Bust of the founder, Dr. Sir Gilbert Blane.

Reverse. A wounded sailor falling into the arms of a comrade. Gold.

Tancred, "Historical Record of Medals Conferred on British Navy, Army, and Auxiliary Forces," 1891, p. 404.

Fund established by Dr. Blane in 1830. Given triennially to the two medical officers who shall produce the most approved journals of their practice while actually serving in ships of the British Navy.

In addition to the bronze cross of the St. John Ambulance Association already given, No. 1395, there is the following:

2059. Obverse. A sprig of St. John's wort, entwined with scrolls, upon which: Jerusalem-England Inscription: Awarded By The Grand Priory Of The Order Of The Hospital Of St. John Of Jerusalem In England Also the name of recipient. (Established in 1874.)

Reverse. A Maltese cross. Inscription: For Service In Cause Of Humanity Silver, bronze. *Ibid.*, p. 16.

HOLLAND.

(No. 1397.) Obverse. Within a circle, a flag with the Geneva Cross. Above: 1870 Below: Job XXIV, 12 Legend: Anima.Vulneratorum.Clamavit. (rosette) 22.Augustus.1864 (rosette)

Reverse. Arranged in circle, twenty armorial shields, with names of the respective countries, beginning above: Neerl., Denem., Spanie, Franc., Hesse, Italie, Portug., Pruiss, Wurtb, Saxe, Oost. R, Beijer, Zw. N. W., Brita, Americ., Egijpt, Rusl., Swit.l., Belgie, Bade In field, the Arms of Geneva. Above, upon a scroll: Geneve. Below: XXVI. Oct.1863 | S.De Vries.La Haye Silver, aluminum, bronze. 27. 41 mm. With loop and broad yellow silk ribbon for neck and breast. In my collection, the gift of Dr. J. J. B. Vermyne, of New Bedford. I was unable previously to describe it.

(No. 1398.) Obverse as that of preceding, save that rosettes of date are wanting.

Reverse blank. Bronze. 8. 12 mm. With loop attached to white silk ribbon bearing the Geneva Cross. In my collection.

BELGIUM.

2060. Obverse. Three men raising a wounded soldier;

ambulance, cannon, rifle, and knapsack. Below : the Geneva Cross. C.Verli.

Reverse. Le Comite | Des Ambulances | De La Presse Française | A | S.M. | Leopold II | Roi Des Belges | Pour Son Intervention | Pleine D'Humanité | En Faveur | Des Blessés Français | 1870-1871 Gold, silver.

Revue belge de numismatique, 1875, p. 207.

2061. Obverse. "1877. Société nationale belge de la Croix rouge. Wurden."

Reverse. "Fete de Charité du 8 decembre. 1877." Kluyskens Cat., p. 49, No. 165.

Brussels.

2062. Obverse. The Arms of the City. (1880).

Reverse. (In memory of the erection of the monument to the French troops who died in the hospital during 1870-71.) Von Krakau Cat., Hannover, 1892, No.1295.

FRANCE.

Dr. Nicolas Heurteleup (1750-1812), Surgeon-in-Chief of the French Army.

There exists a medal similar to No. 1312, but twice its size.

2063. Gold, bronze. 60. 95 mm. Duisburg, p. 62, clvi.; *ibid.*, Cat., No. 225 ; Kluyskens Cat., p. 73, No. 137 ; *Trésor de numismatique, Empire Français*, p. 74, pl. XXXIII., No. 1.

The following belong in this connection :

2064. Obverse. Bust, to right. Beneath : B. Duvivier F. Inscription : Lud.XV. Rex Christianiss.

Reverse. Prix Pour Les Chirurgiens De La Marine Du Roy. Exergue : Fondé En 1768. Bronze. 26. 41 mm.

Kluyskens, *Revue belge de numismatique*, 1884, p. 52. In the Fisher Collection.

2065. Obverse. Napoleon I. with hand on mane of his horse, his right foot bare and being bandaged by a surgeon. About him are grouped the officers of his staff. Inscription : Napoleon Blessé Devant Ratisbonne 20 Avril 1809

Reverse blank. 45. 70 mm. *Trésor de numismatique, Empire Français*, p. 71, pl. XXXI., No. 10. Copied from a painting by Gautherot exhibited at the Salon of 1810. The wound was received on April 23d, and not the 20th as given upon the medal.

2066. Obverse. 1870 | Société Française | De Secours | Aux Blessés Des Armées | De Terre Et De Mer | 1871

Reverse blank. 39x39 mm.

The Geneva Cross. 25x25. Gun metal. Like No. 1401, but twice its size. In my collection, the gift of Dr. J. J. B. Vermeyne, of New Bedford, who was Chief Surgeon of the Dutch Ambulance Corps at Bordeaux during the Franco-Prussian War.

2067. Obverse. 1870 | Société Française | De Secours | 1871

Reverse. 1870 | Aux | Blessés Des Armées | De Terre Et De Mer | 1871

Greek Cross shaped with perpendicular striations. Bronze. 8x8. 13x13 mm. Attached to white silk ribbon, with the Geneva Cross worked upon it. In my collection.

2068. Obverse and reverse as preceding, but enamel instead of bronze. 9x9. 15x15 mm. Greek Cross shaped and attached to similar ribbon, with the Geneva Cross worked upon it. In my collection.

2069. Obverse. The City ambulance of the IVth Arrondissement. Arms of Republic. 1870.

Reverse. Within laurel and oak branches, the Geneva Cross. Silver. 29. 46 mm. Egger Bros. Fifth Cat., Vienna, 1892, No. 5065.

2070. Ambulance established by Sebert (1870). Bronze. 17. 28 mm. Weyl, One Hundred and Eighteenth Cat., January, 1892, No. 227.

GERMANY.

Dr. Friedrich Wilhelm Anton Gottlieb Albrecht Puhlmann (1798-), of Potsdam. Army Surgeon.

2071. Obverse. Bust, to left. Beneath : Kullrich Inscription : Friedrich Wilhelm Anton Puhlmann Mstr (Meister). V(on). St(uhle). Der Loge Teutonia Z(ur). W(eisheit). 1831. 1881.

Reverse. A building. Inscription : Loge Teutonia Z. Weisheit Im Or(ient). V. Potsdam. Exergue : Ihrem Sehr Ehrw. Vorsitzenden Mstr. | Beim Feste Seiner | 50 Jahrigen Hammerfuhrung (gavel wielding) | Am Johannistage | 1881. Silver, bronze. 26. 42 mm. Marvin, *American Journal of Numismatics*, July, 1890, p. 24, No. 822. In my collection.

Dr. Edward Schnitzer (Emin Pasha).

Besides Nos. 1857 and 1858 there are two others.

2072. Obverse. Bust, with spectacles and fez, facing and to right. Inscription : Emin-Pascha

Reverse. Bust with spectacles, facing and to right. Inscription : Dr (not M.D.) Carl Peters Silver. 19. 31 mm. Edges beaded. In my collection.

2073. Obverse. Within beaded circle, three heads to right, Dr. Schnitzer's being the central one, with fez and without spectacles. Inscription : Major Wissmann * Dr Emin Pascha * Dr Carl Peters | . * .

Reverse. Den Thatenreichen | Forschern | Den Unterschrockenen | Männern | Zum Gedächtniss Beneath : a laurel branch, its stem to left, tied by ribbon. Silver, bronze. 25. 40 mm. Edges beaded. In my collection.

I am now enabled to complete the description of the medal of the Ladies' Section of the Red Cross Society at Hamburg.

(No. 1863.) Obverse. A lady in modern dress seated, with three naked children. At sides, trees ; and in front a flowering plant.

Reverse. Within a corded circle, the Geneva Cross. Inscription : Vaterländischer Frauen Hilfsverein | Hamburg. Silver. 25. 40 mm. Thick planchet. In my collection.

2074. The Bayr. Frauenverein Pfalz (Red Cross) exists with F in exergue of the reverse as well as L (No. 1862). In my collection.

AUSTRIA.

2075. Obverse. Bust, to right. Elisabeth Kaiserin-Von Oesterreich | Koenigin Von-Ungarn (etc.)

Reverse. Within field : Die Kranken Zu Heilen | Zu Schirmen Das Land, | Gelobet Die Kaiserin | Mit Herz Und Mit Hand. | . ~ 1866 . ~ | —.— | Inscription : Zur Ehre I. M. Der Kaiserin Elisabeth Protectorin Der Verwundeten* 28. 43 mm. By A. Kleeberg, of Vienna. Struck during war of 1866. *Mittheilungen des Clubs der Münz- und Med.-Freunde in Wien*, May, 1891, p. 142, No. 32.

SWEDEN.

Dr. Pehr (Peter) af Bjerkén (1765-1818), of Stockholm. Surgeon-in-Chief of the Swedish Army.

2076. Obverse. Head, to right. Beneath : L.A. (Leah Ahlborn.) Inscription : Petr. A Bjerkén Med.Reg.Et Castr. Primar. Exergue : N. 1765 O. 1818

Reverse. Within a laurel wreath tied by ribbon, the staff of Æsculapius, upright. Legend : Cæcis Reddidit Visum Læsis Vigorem Exergue : Socio Chirurgo Celeberrimo | R.Acad.Sc.Suec. | MDCCCLXXVIII Silver. 20. 31 mm. Kluyskens Cat., p. 110, No. 46. In my collection.

SECTION XIII. *Registration.*

The medal of Statistical Society of London was described under Dr. John Howard, No. 1936.

SECTION XIV. *Life Insurance.*

BELGIUM.

2077. Assurances | Générales | Contre | Incendies | Et | Sur La Vie. (Brussels, 1838.) By Braemt. Silver, bronze, enamel. 30. 47 mm.

Guioth, *Hist. num. de la Belgique*, p. 241, pl. XXXIV., No. 252 ; Kluyskens Cat., p. 205, No. 267.

FRANCE.

2078. " Compagnie d'assurance sur la vie, établié en 1787." Silver. 22. 35 mm.

Bom & Zoon Cat., December 14th-21st, 1891, No. 842.

SECTION XV. *Hospitals.*

1. Military, Naval, and Quarantine Hospitals.

ITALY. *Venice.*

2079. Obverse. The lion of St. Mark's. Inscription : Comitato Delle Signore Venete 1869.

Reverse. Charity. Inscription : Fiera Di Beneficenza Per L'Ospizio Marino. Bronze. 20. 32 mm.

Corsi Cat., No. 2998.

2. Maternity Hospitals.

HOLLAND. *Amsterdam.*

2080. Hebrew Society for Aiding Lying-in Women. Bronze.

Schulman Cat., September, 1891, No. 74.

FRANCE. *Paris.*

2081. Obverse as that of Nos. 1161 and 1162 (Fernel and Paré), but smaller.

Reverse. Hospice De La Maternité* Within field: 4^r Prix Antoin^{te} Legangueur Lalande. Juin 1804 (engraved). Silver. 32. 50 mm.

Trésor de numismatique, Empire Français, p. 61, pl. XXV., No. 11^{bis}.

ITALY. *Florence.*

2082. Obverse. Head, to right. Ferdinando III A. D'Austria, Granduca (etc.)

Reverse. Ospizio Di Maternità (etc.) 1815. Silver, bronze. 28. 45 mm.

Corsi Cat., No. 1605.

3. Foundling Hospitals.

BELGIUM. *Brussels.* 1857.

2083. Obverse. View of Church of SS. Michel and Gudule.

Reverse. Suppression Du Tour (the turning table for reception of infants) De L'Hospice Des Enfants Trouves. (Etc.)

Bouhy, *Revue belge de numismatique*, 1883, p. 76, No. 112.

ITALY. *Leghorn.*

2084. Obverse. Bust, to right. Inscription: Franciscus D.G.R.I.S.A. (etc.)

Reverse. Auspiciis Caesaris (etc.) Brephotrophium Liburni (etc.) 1755. Bronze. 30. 49 mm.

Corsi Cat., No. 1578.

Rome.

2085. Obverse. Bust. Inscription: Pius VI Pont. Max. An. XXIII.

Reverse. Brephotrophium A Solo Extructum. Camerti-bus. 1797. Bronze.

In the collection of Professor Carlo Minati, of Pisa.

RUSSIA. *Moscow.*

2086. Obverse and reverse like those of No. 1522, save

that the latter is without the initials I. G. I. Bronze. 43. 68 mm.

This beautiful medal of the Moscow Foundling Hospital is in my collection. It is unmentioned by P. and R.

7. Hospitals for the Blind.

THE UNITED STATES.

2087. Obverse. Inscription: Pennsylvania Institution For The Instruction Of The Blind— Within field: Reward | Of | Merit.

Reverse. Crossed laurel branches tied by ribbon. Bronze. 23. 36 mm.

Storer, *American Journal of Numismatics*, July, 1892, p. 7, No. 410^a. In my collection.

BELGIUM. *Brussels.* 1853.

See under Section II., Water Supply, No. 1951. *

Courtrai.

2088. Obverse. L'Administration Des Hospices Civils De Courtrai A Monsieur Fierens Medecin Oculiste (engraved)

Reverse. L'Ecole Des Orphelins. Ophthalmie 1849. 1850 (Engraved.) Silver, gilt. 35. 55 mm. Kluyskens, i., p. 305, No. 2; Duisburg, p. 186, div, 2.

Liege.

2089. Obverse. Inscription: Dispensaire Ophthalmique De Liege. In field: the Calvary Cross ("le perron"). Beneath: Distexhe.

Reverse. In field: Temoignage | De | Reconnaissance | Au Docteur | Antonio Damaso | Guerreiro | 1847. Enamel. 25. 40 mm. Only two struck.

Guioth, *Hist. num. de la Belgique*, p. 217, pl. XXXVII., No. 149; *Revue belge de numismatique*, October, 1853.

Louvain.

2090. Exhibition of old "headgear" for benefit of the Blind Asylum. Bronze. 24. 37 mm. Only twenty struck. *Ibid.*, 1874, p. 243; Bom & Zoon Cat., December 14th-21st, 1891, No. 1941.

GERMANY. *Berlin.*

2091. Obverse. The building. Inscription: *Clinicum Chirurgicum Et Ophthalmiatricum Exergue: Universitatis | Berolinens(is). | MDCCCXIX*

Reverse. The staff of Æsculapius, upright. Legend: *Diligenti | Probato Silver. 19. 31 mm. In my collection.*
9. Hospitals for Deaf Mutes.

HOLLAND. *Groningen.*

Centennial of the Asylum for Deaf Mutes. 1890.

2092. As No. 1552, upon the fiftieth anniversary of the asylum, save that on the reverse there is the word *Hunderd-jarig*, and date 1890, and the initials *W. S(chamauer)*. Bronze. 26. 41 mm. I have its description from Mr. A. A. Looyen, Director of the Royal Cabinet at The Hague, through Dr. J. J. B. Vermyne, of New Bedford.

GERMANY. *Leipsic.*

Samuel Heinicke (1729-1790), of Leipsic. Opened the first asylum for deaf mutes in Germany. "*Ueber die Denkert der Taubstummen.*" Leipsic, 1780.

2093. Obverse. Bust, facing and toward right. Beneath: *Bergmann Hamburg* Inscription: *Samuel Heinicke Geb. 1729 Gest. 1790 30/4 (April 30th.)*

Reverse. *Zum | 100 | Jaehrigen | Todestage | Gefeiert | Zu Eppendorf | Am 30 April | 1890 Tin. 18. 28 mm. In my collection.*

10. Hospitals for the Crippled.

DENMARK. *Copenhagen.*

2094. Founding of Orthopædic Institute. 1834. By Jorgensen.

Bronze. 36 mm.

Weyl, *One Hundred and Twenty-second Cat.*, 1892, No. 31.

11. General Hospitals.

ENGLAND. *London.*

St. Bartholomew's Hospital.

2095. Obverse. The Hospital Arms. Inscription: *St. Bartholomew's Hospital. Nurses' Prize.*

Reverse. Within field, name of recipient and date. Inscription : The Gift Of The Clothworkers' Company. Gold. 24. 37 mm. With loop. Communicated to me by Dr. F. P. Weber, of London.

St. Thomas's Hospital.

2096. Obverse. Head, to left. Beneath : After E. B. Stephens A.R.A. J.S. & A.B. Wyon. Inscription : Samuel Solly. F.R.S.

Reverse. In Memory Of Samuel Solly. F.R.S. Surgeon to St. Thomas's Hospital (rosette) Founded A.D. 1873 (rosette) Within field : Awarded For Excellence Of Surgical Reports To (here name of recipient). Bronze. 44. 68 mm. Cat. of the medals of the Royal Society of London, No. 63. In the Fisher Collection.*

BELGIUM. *Brussels.* 1859.

2097. Obverse. View of column of the Congress, etc.

Reverse. Reglement Sur Le Service Des Hopitaux. Ordonnance Sur Les Inhumations. (Etc.) Plan De Reconstruction De L'Hopital St. Pierre. (Etc.)

Bouhy, *Revue belge de numismatique*, 1883, p. 80, No. 122.

FRANCE. *Marseilles.*

2098. Obverse. View of hospital. Inscription : Reconstruction De L'Hotel-Dieu De Marseilles. Visite De S. M. L'Empereur 30 Octobre 1864. Exergue : L'An MDCCCLXIV, Le 12^e Du Regne De Napoleon III, Empereur Des Français, S. E. M. Bourdet, Ministre De L'Interieur, M. De Maupas, Senateur, Ch^f De L'Admⁿ Du Dept. M. Bernex, Maire De Marseille. M. Blanchet, Architecte.—A. Caqué, Graveur De S. M. L'Empereur F.

Reverse. Within a cartouche, surmounted by arms of Archbishop of Marseilles with those of the city : Administrateurs | 1861 (nine names) — 1864 (nine names) | Caqué Inscription : Achèvement de L'Hopital De La Conception — Restauration De l'Hospice De La Charité. 60. 95 mm. Struck at Paris in 1866.

* I cannot refrain from expressing my deep regret at the death, which has occurred while these pages are in the press, of Dr. George J. Fisher, of Sing Sing, N. Y., who has been my constant correspondent regarding medical medals for several years.

“ *Annuaire de la Société Française de num. et d'archéologie*, 1866, ii., p. 328.

Meaux.

Consecration of the hospital at Meaux. 1845.

2099. Obverse. Head of Louis XVIII.

Reverse. Inscription. Bronze. 32. 52 mm. Zsiesche & Koder Cat., April, 1892, No. 2345.

Paris.

2100. Obverse. Charité De La Paroisse De St Germain L'Auxerrois.

Reverse. Saignée Du Pied. Quartier De Louvre. (Out-Service Department.) Bronze. Duisburg Cat., No. 860.

2101. Obverse. Societe | De Medecine | De Paris | = Exergue : 4.Germinal | An 4

Reverse. Staff of Æsculapius between two branches of medicinal plants. Below, in two cross lines : Consultations-Gratuites. Exergue : 22 Mars | 1796 Silver. 18. 29 mm. Rim in circles.

Hennin, *Hist. Num. Rév. Fr.*, p. 498, pl. LXXII., No. 722.

There was an error in dating the above, requiring the issue of the following :

2102. Obverse as preceding, save 2.Germinal instead of 4.

Reverse. Staff of Æsculapius, horizontally. Consulta- | tions | Gratuites | = Exergue : 22 Mars | 1796 Silver. 19. 29 mm. Rim dentated. *Ibid.*, p. 498, pl. LXXII., No. 723.

St. Étienne (Loire)?

2103. Obverse. Religion with a cross, upon a throne. By her an old man and weeping child, and a sick person upon a bed. Inscription : Aegrotis.Senibus.Parvulisq.Derelictis. Publicum.Allevamentum. Exergue : Ob Scientiam.Studiumq. In.Cives. Beneath : Albert Barre 1854.

Reverse. Between palm leaves : J. Dubessey. Imperatoris. Consiliario. Praefecto. Quondam. Suo. Ligeretenses. Incolae. MDCCCLIII. Inscription : Medici. Regionales. Voto. Senatus. Provinc. Curaq. J. Dubessey. Praef. Ligeretensis. Instituti. MDCCCLI. Bronze. Duisburg Cat., No. 862. Upon the establishment of a hospital.

Of the following I have as yet been unable to obtain the description :

2104. Hospital of the Eure and Loire. Silver. Octagonal. Corsi Cat., No. 4058.

GERMANY. *Hamburg.*

Jewish Hospital.

I have found that there are two varieties of the smaller medal.

(No. 1611.) Obverse. A & M on truncation of neck. Name above head, in large letters. Words of legend beneath, crowded.

Reverse. Lettering of exergue large, and lines close together.

2105. Obverse. Beneath neck: J D Name in small letters. Words of legend, apart.

Reverse. Letters of exergue small, and lines apart. Both of them are in my collection.

AUSTRIA. *Trieste.*

Besides No. 1905, of the Civic Hospital at Trieste, 1841, there is

2106. Obverse. View of the hospital in a hollow square. Inscription: Ospedale Civico Di Trieste Exergue: D. Conzani F.

Reverse blank. Lead. 29. 47 mm. In my collection.

ITALY. *Rome.*

In addition to Nos. 1621, 1622, and 1930 there seem to be still other medals relating to the Archiospedale di Santo Spirito. As No. 1621 had not been fully described, I will here give it.

(No. 1621.) Obverse. Bust. Inscription: Alexan:VII. Pont.Max.A.XII (1667).

Reverse. The building. Oedibus Oeconomia | Et Disciplina | Restitutis. Bronze. 28. 44 mm.

Bonanni, *loc. cit.*, ii., p. 641, fig. 28.

In the collection of Dr. Carlo Minati, at Pisa.

2107. Obverse as reverse of preceding.

Reverse. Legend: Honos Alit Artes. Bronze. 28. 44 mm. Corsi Cat., No. 5091.

2108. Obverse. Bust of Clement XII. Anno IX (1739).

Reverse. The Pope blessing the sick. Legend: Pia. Domo. Servata. Silver. 25. 39 mm. Cahn Cat., Frankfurt, February, 1885, No. 661.

2109. Benedict XIV. 1746. Same legend.

Köhler, xx., p. 428, No. 829; Devegge Cat., No. 673.

2110. Obverse. Fratres S. M. De. Svffragio (etc.) Ampliori Commodo Infirmorum (etc.)

Reverse. Ex Loco Inclementi In Salvbriorem Jacto Fvndamento 1789 (etc.) Bronze. 35. 54 mm. Corsi Cat., No. 5094. In my collection.

2111. Obverse. A saint. Ospedale Maggiore Dell' Ordine Mauriziano.

Reverse. Within a wreath: Al Merito. Bronze. 27. 43 mm. *Ibid.*, No. 5095.

2112. Obverse. Bust, to right. Contessa Laura Visconti Ciceri.

Reverse. Provvida Munifica Fondava Lo Spedale Delle Fate Bene Sorelle 1836. Bronze. 30. 48 mm. *Ibid.*, No. 5096.

2113. Obverse. A monk with a sick person. Ordo S. Joannis De Deo A Gregorio XVI P. M. Praepositus Valetudinario S. Jacobi (etc.) 1842.

Reverse. Ob Esploratam Anatomicae Peritiam (etc.) Bronze. 37. 60 mm. *Ibid.*, No. 5097.

2114. Obverse. Bust, to left. Gregorius XVI Pont. Max. A. XV. (1845.)

Reverse. Coat of arms. Archiospitale S. S. Virginis A Consolatione. Bronze. 27. 43 mm. *Ibid.*, No. 5102.

Venice.

2115. Foundation of hospital. 1690. 45. 72 mm. Kluyskens Cat., p. 45, No. 15.

2116. The hospital. 1779. 28. 45 mm. *Ibid.*, p. 46, No. 47.

The following are related to hospitals:

THE UNITED STATES.

2117. Obverse. Nude bust, with queue, to right. Upon neck: G. H. L(ovett). Inscription: George Washington

Reverse. Washington | K(ranken). U(nterstützungs). Verein (Society for Relieving the Sick) | 40 Jährige | Gründungs-Feier

| Mai. 16 1891 Bronze. 26. 41 mm. Edge of obverse, lined ; of reverse, finely milled. Thick planchet.

Storer, *American Journal of Numismatics*, July, 1892, p. 7, No. 410. In my collection.

FRANCE. *Rouen.*

2118. Obverse. Blazing sun. In centre, a gold and enamelled cross. Inscription : Hospitaliers Sauveteurs Bretons de Rouen. Wreath and ring, for suspension. Communicated to me by the Messrs. Chapman, of Philadelphia.

GERMANY. *Heidelberg.*

2119. Obverse. Diademed head, to left. On neck : Doell
Inscription : Stephanie Napoleon Grosherzogin Von Baden
Exergue : MDCCCXII.

Reverse. Within rose wreath : Zum Sohne | Der Zoglin-
ginner | Der | Krankenpflege | Im Institut | Zu Heidelberg
| — | Sine | Charitate | Nihil | Sum | St. Paul. 30. 47 mm.
Trésor de num., Supplement, p. 139, pl. LXXII.

AUSTRIA. *Vienna.*

2120. Obverse. Between laurel and oak branches, the Virgin. Beneath : Krankenverein Maria Heil | Der Kranken
Bitt Für Uns.

Reverse. Date and inscription. 24. 37 mm. By J. Zimbler, of Vienna.

To commemorate the fiftieth anniversary of the Society.

Mittheilungen des Clubs (etc.) in *Wien*, May, 1891, p. 124, No. 188.

Whether the following represents a hospital or a medical college, I have as yet been unable to determine.

FRANCE. *Nismes.*

2121. L'Institut de Santé et de Salubrité. 1796.

Yellow copper. 22. 35 mm. Prize medal.

Kluyskens Cat., No. 74.

I append the description of an interesting seal, that of the Sociedad de Hygiene de la Provincia de la Habana. *

2122. Obverse. A circular band, with clasps. Within :
Omnes | luctantes Hygea | victrix

"Informe del Doctor Erastus Wilson," etc., title-page.

CLASSIFICATION OF MINERAL WATERS.

By A. N. BELL, A.M., M.D.

MINERAL waters have been used from time immemorial as medicinal agents, but always with exceedingly variable effects, even in the use of the same waters and for the same diseases. This irregularity of action is to be accounted for by reason of the instability of some of the most important qualities. For, although water is the most universal solvent in nature, its operations in this respect are on very different scales, chiefly depending upon its temperature and the amount and kind of gases and acids it holds in solution.

The solvent power of water, when heated under pressure to a temperature above 212° Fahrenheit, is greatly increased, insomuch that the late Dr. Turner found that pieces of glass enclosed in the upper part of a high-pressure steam-boiler, worked at 300° F., at the expiration of four months were found completely corroded by the action of the water; that which remained was a mere white mass of silica, destitute of alkali, while stalactites of silicious matter, above an inch in length, depended from the little wire cage which enclosed the glass. This experiment aptly illustrates the conditions and the changes produced by the action of water confined at a high temperature in contact with various mineral substances in the interior of the earth. Pressure also exercises a marked influence on the absorptive power (the solution) of water, of gases independent of temperature. And this condition, probably more than any other, is made use of to the detriment, or at least to the change of quality, of mineral waters in common use.

Gases are soluble in water in very unequal quantities of the different gases at different temperatures. For example, at 32° F., one volume of water dissolves somewhat less than one twentieth of its volume of hydrogen and exactly one fiftieth of its volume of nitrogen, while it dissolves five hundred and six and one thousand and fifty volumes, respectively, of hydrochloric acid and ammonia. And again, at the same temperature, 32° , it dissolves 1.8 times its volume of carbonic acid,

while at 62° it dissolves only half as much. Ordinarily, the greater the pressure the greater the quantity of gas absorbed. Gases moderately soluble in water follow a chemical law (of Henry and Dalton), according to which the quantity of gas dissolved is proportional to the pressure. But gases which are exceedingly soluble in water, ammonia, and hydrochloric acid, for example, do not conform to this law; these gases are soluble up to eight hundred or one thousand times their volume.

Salts generally are soluble proportional with the increase of temperature, but they deposit on the cooling of the water. There are some important exceptions, however, the most remarkable of which is that of common salt, which is about equally soluble at all temperatures. And a few there are—hydroxide and certain organic salts of calcium, for example—more freely soluble in cold water than in hot. And there are some salts so extremely soluble in water that they extract the vapor from the atmosphere and dissolve themselves in it. Such are the conditions common to mineral waters as they obtain everywhere.

Everybody knows that the most stable qualities of mineral waters are the easily ascertainable mineral substances taken up and held in solution from the geological strata from which the water springs or through which it has passed. But if the no less important volatile qualities—the temperature, by means of which the mineral substances are held in solution, and the kind and quantity of gases contained in it as it springs to the surface—are ignored in the too great haste to put it upon the market, it is a very imperfect imitation. Indeed, it is upon the continued presence, approximately at least, of the same temperature, kind and amount of gases, by which the water is empowered to hold the mineral substances natural to it in solution, no less than upon the mineral substances themselves, that its true therapeutical properties depend. Hence the difference in the effects of mineral waters partaken of at their source and those designed to represent them, served in bottles.

Moreover, with reference to bottled waters particularly, in the effort of bottlers to replace the gases that begin to escape from the water at the springs the moment it is relieved from

pressure—which it is difficult, if not wholly impracticable, to duly estimate—it is frequently surcharged with carbonic acid to such a degree as to effect a change in its properties, insomuch that alkaline waters at the springs are not infrequently acidulated waters in the hands of physicians and their patients, liable to wholly different effects from the remedy intended. Besides, there are many people, and some of them physicians, who are so little acquainted with the properties of mineral waters that they estimate their freshness and excellence according to the amount of carbonic acid they appear to contain on drawing the cork.

Clearly such a classification of the mineral waters of the United States as will indicate all their chemical constituents and therapeutical properties is impracticable.

Their therapeutical properties are indicated by what they hold in solution and their temperature. Hence they are acid, alkaline, alterative, antacid, astringent, calorific, diaphoretic, diuretic, lithontriptic, purgative, refrigerant, stimulant, tonic, or a mere luxury, according to what they hold in solution and their temperature; and it is the physician's sphere to appropriate them.

The following classification is believed to be sufficiently comprehensive to include the properties of all the mineral waters in the United States hitherto described.

1. ACIDULOUS WATERS.—These owe their virtues chiefly to the presence of free carbonic acid gas, commonly due to the decomposition of iron pyrites in the crystalline rocks, by which sulphuric acid is formed. The contact of sulphuric acid with the carbonates liberates the carbonic acid gas, and this, being absorbed by the water, communicates its acid properties. The amount of carbonic acid must of course be in excess of that which is required for combination (forming carbonates or bicarbonates) with any chemical substances contained in the water; and the strength of the acidulous water is to be determined by the proportion of such really free carbonic acid only. Such waters greatly vary in the amount of their solid constituents, and thus different waters of this class also possess the properties of some one or more of the other groups, into which they may also be classified with equal propriety.

2. **ALKALINE WATERS.**—These are commonly distinguished by containing carbonate of sodium and free carbonic acid, and in rare instances the biborate of sodium, with or without the presence of chloride of sodium, and sulphate of sodium also. Hence they may be alkaline sodic or acidulous alkaline, containing bicarbonate of sodium; alkaline muriatic, containing the chloride of sodium; or alkaline saline, containing sulphate of sodium—all variable. In some cases the products of the decomposition of the silicates are chiefly sulphates and carbonates of the alkalies; and if the latter are abundant, they will, on account of their extreme solubility, render the water decidedly alkaline. And these are commonly highly charged with free carbonic acid—as, for example, Vichy water. In the purest alkaline waters there are scarcely any solid ingredients except the carbonates of the alkalies. Alkaline waters are also not unfrequently met with both as thermal and cold springs.

3. **CALCAREOUS OR EARTHY WATERS.**—These waters are characterized by the presence of the sulphates and carbonates of lime and other alkaline earths, frequently held in solution by an excess of carbonic acid. Sulphate of lime is the particular salt upon which the properties of these waters commonly depend, but most of the springs containing it also contain the carbonate of lime. These are the waters generally designated by the name “hard waters.” The phosphate of lime is also sometimes found in calcareous waters, and, in the absence of an excess of the sulphates and carbonates, it is a valuable constituent.

4. **CHALYBEATE WATERS.**—These waters are characterized by the presence of iron. The form in which it is found is, with rare exceptions, the bicarbonate of the protoxide, held in solution by the excess of carbonic acid with which the water is charged. Chalybeate waters are for the most part cold, although they are sometimes thermal. They are frequently strongly acidulous, from the large excess of carbonic acid which they hold. Upon prolonged exposure to the air the iron salt gradually undergoes decomposition and separates from the water as hydrated oxide of iron, the free carbonic acid escaping. The sulphate of oxide of iron is sometimes present in these waters, but in exceedingly small quantity; and “some of them contain a not insignificant amount of

bicarbonate of sodium, and are therefore 'iron acidulous' springs; others contain Glauber salt (the maximum three-fifths grammes to the litre), and are therefore called 'muriatic acidulous iron springs.' Finally, some contain a certain amount of carbonate or sulphate of lime (maximum of two grammes to the litre): these are called 'earthy acidulous iron waters' '' (Ziemssen).

5. CHEMICALLY INDIFFERENT WATERS.—This group comprises such waters as do not contain a sufficient amount of any chemical substance as to give a distinctive character, yet they seem to possess properties which give them some medicinal value. As no natural water has ever been found perfectly free from the solution of gases or other substances, extraordinary freedom from such substances suggests that such water may be partaken of in larger quantity with impunity, and that, on account of its greater purity, it possesses proportionately greater absorptive power, indicating its usefulness.

6. SALINE WATERS.—These are, for the most part, solutions of halogen compounds of the alkalis, commonly distinguished by the presence of a large amount of the chloride of sodium, or common salt. But they also comprise solutions of the chlorides of calcium, magnesium, potassium, lithium, and aluminum. And some are said to contain small amounts of the iodides and bromides of soda, arsenic, potassium, calcium, and magnesium, but in very minute quantities.

7. SULPHURETTED WATERS.—These chiefly depend for their properties upon the presence of sulphuretted hydrogen, and are commonly distinguished by their odor, independent of analysis. The sulphuretted hydrogen in these waters is formed by the oxidation of iron pyrites in contact with water. The sulphides of sodium, calcium, magnesium, and potassium are sometimes present in these waters, singly or together, but always in very minute quantities; as, indeed, the sulphuretted hydrogen—the amount held in solution by water or given off from it—varies from a mere trace to forty-two cubic centimetres in the litre. These waters are widely distributed, cold or thermal in various degrees.

8. UNCHARACTERIZED WATERS.—This group includes all mineral waters whose properties are not sufficiently well known by analysis or otherwise to signify their properties.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

THE CHEMISTRY OF DIGESTION was the subject of a communication to the Académie des Sciences, by M. J. Winter (*Gazette Hebdomadaire*, January 7th, 1893), who has made a special study of the subject, associated with Professor Hayem.

“The origin of hydrochloric acid in the stomach, he says, “is far from being definitely established.

“1. When the stomach is empty it has neither hydrochloric acid nor special cells in which this acid could be constantly secreted previous to taking food.

“2. The hydrochloric acid which is found in the digestive fluid, either free or combined with organic substances, is a reactional body produced in the stomach when it is excited by food or by any other artificial excitement, and is the result of the action of the glandular elements in the digestive solution on certain metallic chlorures found in the blood.

“3. The free form of hydrochloric acid appears always subsequently to the combined organic form.

“4. The artificial solution of the cells of certain portions of the gastric mucus gives rise to an acid liquid which does not contain a trace of free hydrochloric acid ; but this acid is in a remarkable proportion to the total quantity of phosphorus in the liquid.

“5. All the elements which can be found in the gastric fluid vary constantly with the different periods of digestion, while we do not know by what influences these variations are determined ; whether they are regular and continuous, or without order and irregular.”

“At present,” said Mr. Winter, “my researches are directed so as to determine (a) if the facts revealed by the analysis are developed in accordance with fixed *mathematical laws* ; (b) the facts of digestion, of secretion, and of cellular solution constitute functions independent of one another, but united among themselves by chemical, mechanical, or physical relations ; (c) that one of the principal factors of this union is the

concentration which is effected in the stomach—that is to say, the phenomena of osmosis, which is seated in this organ.”

MICRO-ORGANISMS' SEPARATION, BY MEANS OF CENTRIFUGAL FORCE, has been shown, by M. Deherain, in a communication to the Académie des Sciences, to be a new and valuable procedure.

A liquid containing micro-organisms is purified or freed from the microbes solely by this simple process.

Micro-organisms have mostly in their organization substances heavier than water; these are the albuminoid substances, those of a cellular nature, and mineral substances which are separated by incineration.

If living microbes float in liquids, such as wine, cider, and milk, which have nearly the same density, it is probably because they contain small quantities of gas; but, on the other hand, the force which would cause them to rise or to descend in a heavier or a lighter liquid than their protoplasmic substance is certainly very feeble, considering the very small dimensions of these bodies.

But this tendency to separate may be greatly increased by submitting the vessels containing the fermentable liquids and the included organisms to a rapid rotary motion.

Rotary motion clarifies the liquids and causes the formation of a clammy or gelatinous deposit. In examining these deposits under the microscope, they are seen to be composed mostly of a mass of living organisms.

The greater the size of the organisms the easier they seem to separate; the mycelium is very clearly isolated, and the spores of the moisissures and also the saccharomyces, while the bacteria are but imperfectly separated.

Finally, the more easily to effect a separation, the density of the containing liquids may be diminished by the addition of other liquids, lighter than water, as by the addition of alcohol or ammoniacal preparations.

This method of separating bacteria may be very useful in bacteriological researches, and in industrial processes water that is contaminated or unhealthy may often be successfully freed from a very great part of the organisms contained in it, by admitting into the turbine a little air, but only such as has been freed from germs.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076: T. S. Scales, M.D., Health Officer, reports for the month of December a total mortality of 57, of which number 7 were under five years of age, and 27 were colored.

The annual death-rate was 21.96 per 1000. There were 6 deaths from zymotic diseases, and 6 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Mortality reports from 108 cities, towns, villages, and sanitary districts, having an aggregate population of 818,764, give 1155 deaths from all causes in December. This corresponds to a death-rate of 1.41 per 1000, or 16.92 per 1000 per annum. There were 189 due to consumption, 134 to pneumonia, 51 to bronchitis, 6 to congestion of the lungs, 14 to diarrhoea and dysentery, 14 to cholera infantum, 50 to other diseases of the stomach and bowels, 27 to diphtheria, 15 to croup, 9 to scarlatina, 1 to small-pox, 2 to whooping-cough, 24 to typhoid-fever, 3 to cerebro-spinal-fever, 40 to cancer, 1 to erysipelas, 100 to diseases of the heart, 8 to alcoholism, 1 to the grip, and 467 to all other causes. Zymotic diseases caused 1.48 per cent of all the deaths during the month. December compares favorably with the corresponding month of the past three years. In December, 1890, the death-rate per 1000 of the population was 1.67; in December, 1891, 2.19 per 1000; while the past month reached but 1.41 per 1000.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, sums up the mortality reports for December as follows:

The mortality report for December has been received from every town in Connecticut except Union.

There were 1041 deaths reported in the State during the month. This was 24 more than in November; it was 688 less than in December, 1891, and 58 less than the average number of deaths in December for the five years preceding the present.

In the whole year the number of deaths was 14,853, being 803 more than in the last year, and 1956 more than the average for the last five years.

The death-rate was 16.4 for the large towns, 14.5 for the small towns, and for the whole State, 15.8.

The deaths from zymotic diseases were 180, being 17.3 per cent of the total mortality against 19.2 per cent in November.

The deaths from consumption numbered 112.

New Haven, 95,000 : Total mortality, 147. Annual death-rate per 1000, 18.1.

Hartford, 58,600 : Total mortality, 102. Annual death-rate per 1000, 19.2.

Bridgeport, 55,000 : Total mortality, 74. Annual death-rate per 1000, 15.9.

Waterbury, 34,000 : Total mortality, 51. Annual death-rate per 1000, 18.0.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for four weeks ending January 28th, a mortality of 504, of which number 214 were of colored people, and 162 were under five years of age. The annual death-rate was 25.2 per 1000. There were 56 deaths from zymotic diseases, and 64 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

Pensacola, 15,000 : R. W. Hargis, M.D., President, reports for the month of January, 1893, 20 deaths, of which number 7 were under the age of five years. The annual death-rate was 16.0 per 1000.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,400,000 : John D. Ware, M.D., Commissioner.

During the month of January, 1893, there were reported 2273 deaths. Of this number 1004 were under five years of age.

The annual death-rate represented was 18.96 per 1000. There were 451 deaths from zymotic diseases, of which 113 were from diphtheria, and there were 198 deaths due to consumption.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored. There were reported for four weeks ending January 28th, 626 deaths, of which number 249 were among the colored people, and 110 of children under five years of age. There were 66 deaths due to zymotic diseases, and 82 to consumption. The annual death-rate was 32.14 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for January that there were 846 deaths, a decrease of 178 compared with the corresponding month of January, 1892. Of these 660 were whites and 186 colored—a death-rate of 20.62 per 1000 for the former and 31.43 per 1000 for the latter. The death-rate per 1000 for the whole population was 22.32. 36 died from infectious diseases, 101 from consumption, 109 from pneumonia, 29 from bronchitis, 16 from Bright's disease,

and 20 from typhoid-fever. 272, or 32.15 per cent, of the total deaths were in children under five years of age.

During the month 210 cases of infectious diseases were reported—a decrease of 30 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman. During the year 1892 the summary of deaths was as follows : Total mortality, 11,236 ; deaths under five years of age, 3735 ; from zymotic diseases, 2014, of which number there were from cholera infantum, 563 ; diphtheria and croup, 481 ; scarlatina, 262 ; typhoid-fever, 137 ; from consumption there were 1414 deaths ; bronchitis, 557 ; pneumonia, 1122 ; heart diseases, 890 ; cancer, 328, and still-births, 633.

There were 1000 deaths reported in December, of which number 292 were under five years of age. The annual death-rate per 1000 was 25.55. There were 141 deaths from zymotic diseases, and 116 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of January, 1893, compared with the preceding month, the reports indicate that small-pox, cerebro-spinal meningitis, measles, puerperal-fever, scarlet-fever, and pneumonia increased, and that membranous croup, cholera infantum, inflammation of bowels, remittent-fever, typho-malarial-fever, typhoid-fever, whooping-cough, and cholera morbus decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was northwest (instead of southwest), the velocity was greater, the temperature was much lower, the rainfall at Lansing was .23 of an inch more, the absolute and the relative humidity were less, the day and the night ozone were more, and the height of ground above the water in the well at Lansing was four inches more.

Compared with the average for the month of January in the seven years 1886-92, scarlet-fever, small-pox, and cerebro-spinal meningitis were more prevalent, and membranous croup, inflammation of bowels, intermittent-fever, remittent-fever, inflammation of brain, cholera infantum, erysipelas, whooping-cough, typho-malarial-fever, consumption, pleuritis, neu-

ralgia, and inflammation of kidney were less prevalent in January, 1893.

For the month of January, 1893, compared with the average for corresponding months in the seven years 1886-92, the prevailing direction of the wind was northwest (instead of northwest and southwest), the velocity was slightly less, the temperature was lower, the rainfall at Lansing was .13 of an inch less, the absolute humidity was less, the relative humidity was more, the day and the night ozone were less, and the height of ground above the water in the well at Lansing was one inch more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of January, 1893, at ninety-two places; scarlet-fever, one hundred and forty; typhoid-fever, fifty-seven; measles, fifty-seven; and small-pox at two places.

Reports from all sources show diphtheria reported at sixteen places less, scarlet-fever at thirty-six places more, typhoid-fever at two places more, measles at forty places more, and small-pox at two places more in the month of January, 1893, than in the preceding month.

Detroit, 230,000: S. P. Duffield, M.D., Health Officer, reports for the month of December 294 deaths, of which number 60 were under five years of age. The annual death-rate was 15.08 per 1000. The deaths from zymotic diseases numbered 51, and from consumption, 18.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing, reports for October, 1892, in a population of 1,301,826, a mortality of 796. Annual death-rate, 7.44 per 1000.

There were 75 deaths from tuberculosis, 63 from diphtheria and croup, 32 from pneumonia, 11 from bronchitis, 48 from enteric-fever, 6 from scarlatina, 8 from whooping-cough, and 83 from diarrhœal diseases in children.

During November, 1892, there were 797 deaths. Annual death-rate, 7.45 per 1000.

There were 59 deaths from tuberculosis, 73 from diphtheria and croup, 52 from pneumonia, 15 from bronchitis, 39 from enteric-fever, 30 from scarlatina, and 23 from diarrhœal diseases in children.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent, reports that there were 1621 deaths during the year ending December 31st, 1892. Death-rate per 1000, 12.2. There were 575 deaths under five years of age. Zymotic diseases caused 223 deaths, and consumption, 180.

During December there were 111 deaths, representing an annual death-rate of 10.03 per 1000.

Deaths under five years of age numbered 38. From zymotic diseases there were 5 deaths, and from consumption, 11.

Reported cases of contagious and infectious diseases numbered 49.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 292,574 : C. J. Rooney, Jr., Clerk, reports for the month of December a mortality of 545, of which number 212 were under five years of age. The annual death-rate per 1000 was 22.3. There were 89 deaths from zymotic diseases, and 68 from consumption.

Paterson, 85,386 : J. L. Leal, M.D., reports for December 129 deaths, of which number 38 were under five years of age. The annual death-rate was 17.07. There were 20 deaths from zymotic diseases, and 14 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows :

There have been 126,300 deaths reported for the year 1892, in the *Monthly Bulletins*, 4000 reported too late to be included in the *Bulletin*, and 450 estimated to have occurred in localities failing to make any return, making a total number of deaths in the State for the year 130,750. This makes the death-rate for the year 20.78 per 1000 population ; in 1891 it was estimated at 21.43 ; in 1890 and 1889 at 19.65.

The infant mortality (under five years) was 33.5 per cent. The zymotic death-rate for the year was 182.87 per 1000 deaths from all causes ; for the first six months, 132.57 ; for the last six months, 236.34. In 1891 it was 178.00, and for the five years preceding, 193.00. Typhoid-fever caused 300 fewer deaths than last year. From diphtheria there were 5,918 deaths, or 850 more than in 1891 ; it has been prevalent during the fall in many scattered localities. Scarlet-fever caused 2177 deaths (2254 in 1891). Measles caused 1350 deaths (1200 in 1891). From diarrhoeal diseases the mortality was the same as in 1891. Whooping-cough caused 921 deaths (825 in 1891). There is little variation from last year in the deaths from malarial diseases and cerebro-spinal-fever. Small-pox prevailed throughout the year in the maritime district, of 143 deaths, all but 1 occurring there. Outbreaks, limited to 1 case or family, occurred in Syracuse, Albany, Kingston, Peekskill, and Durham, in Greene County. In 1891 there were but 4 deaths from small-pox. Typhus-fever has been limited to New York City through the year. Epidemic influenza (the grip), the third appearance of which began in December, 1891, and did not pass entirely away until early summer, 6000 deaths were estimated to have occurred, and 8000 including December. It seems to have reappeared in very mild form toward the close of the year. From all local diseases there was a large increase in mortality during the grip epidemic ; the death-rate from old age was especially large in January. From consumption there were 13,471 deaths ; there was 1 death in every 475.57 of the population, which is about the average for the five years preceding.

During December there was an average daily death-rate of 308. In November, which is always a month of low mortality, there were 281 deaths daily. In December, 1891, there were 362, or, deducting the deaths from epidemic influenza then prevailing, 297. Excepting June and November, there were fewer deaths than in any month of the year. Of deaths occurring under the age of five years, there were 29 per cent, which is below the average for this season. The zymotic mortality was both actually and relatively less than in November. The only disease of this class showing an increase

over last month is scarlet-fever, from which there were 195 deaths; of these, 26 occurred in rural districts; its mortality is lower than during the first half of the year. Diphtheria caused fewer deaths than in November, but for the past two months has been more prevalent than for a year past. No new localities report its prevalence. Typhoid-fever has caused 147 deaths, which is less than in any month since July. From acute respiratory diseases there were 1737 deaths—an increase of 300 over November, but about the same as in December, 1891. There is likewise an increase of 200 deaths from consumption. From diseases of the circulatory, urinary, and nervous systems there is an increase over last month, but the mortality is not above the average for the year. Returns are received of deaths from epidemic influenza; if again prevalent, as is probable, it is in such mild form as to but little increase the mortality, as heretofore, in diseases of the respiratory, digestive, and nervous organs; there were not more than 300 or 400 deaths from it. The death-rate for the six large cities was 22 per 1000 population; of rural towns it was 17. Typhus-fever caused 5 deaths in New York.

New York, 1,801,739: Total deaths, 3216—1084 under five years. Death-rate, 20.92. Zymotic diseases per 1000 deaths from all causes, 144.28. Deaths from consumption, 427. There were 57 cases of typhus-fever in the Riverside Hospital January 21st, since which time, to January 28th, there have been admitted 32 cases. Of this number 6 have died and 17 have been discharged.

Brooklyn, 957,163: Total deaths, 1642—613 under five years. Death-rate, 20.22. Zymotic diseases per 1000 deaths from all causes, 136.42. Deaths from consumption, 202.

Syracuse, 91,944: Total deaths, 149—43 under five years. Death-rate, 19.45. Zymotic diseases per 1000 deaths from all causes, 146.70. From consumption, 24.

Albany, 97,120: Total deaths, 217—73 under five years. Death-rate, 26.69. Zymotic diseases per 1000 deaths from all causes, 124.43. From consumption, 31.

Buffalo, 278,796: Total deaths, 454—186 under five years. Death-rate, 19.70. Zymotic diseases per 1000 deaths from all causes, 154.20. From consumption, 60.

Rochester, 144,834: Total deaths, 200—63 under five years. Death-rate, 16.57. Zymotic diseases per,1000 deaths from all causes, 245.00. From consumption, 16.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of December 135 deaths in twenty-three towns aggregating 121,214 inhabitants. The annual death-rate was 13.4 per 1000.

Typhoid-fever caused 3 deaths; diarrhoeal diseases, 3; heart diseases, 12; brain diseases, 7; malarial-fever, 3, and consumption, 16.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus, reports in *Monthly Sanitary Record* as follows:

From 66 cities and towns, with an aggregate population of 1,308,498, there was a mortality of 1788 during the month of November, of which number 384 were under five years of age. The annual death-rate represented was 16.39 per 1000. The deaths from zymotic diseases numbered 420, of which 54 were from typhoid-fever and 192 from diphtheria and croup; from consumption there were 166 deaths; from heart diseases, 125; from pneumonia, 129, and from bronchitis, 37.

Cincinnati, 305,000: J. W. Prendergast, M.D., Health Officer, reports for the month of January 510 deaths, of which number 156 were under five years of age. The annual death-rate was 20.06 per 1000. There were 50 deaths from zymotic diseases, and 59 from consumption.

Columbus, 101,945: Lee McBriar, M.D., Health Officer, reports for December, 1892, 102 deaths, of which number 17 were under five years of age. Annual death-rate, 12.99 per 1000. From zymotic diseases there were 19 deaths, and from consumption, 11.

During the year 1892 there were 1265 deaths, of which typhoid-fever caused 45; consumption, 165; diphtheria, 76; scarlet-fever, 15.

Mansfield, 15,000 : R. Harvey Reed, M.D., Health Officer, reports for December, 1892, 19 deaths, representing a death-rate of 9.60 per 1000 per annum. There were 5 deaths under five years of age.

During the year ending February 29th, 1892, there were reported 203 deaths, of which 53 were under five years of age. Death-rate per 1000, 13.53. From consumption there were 29 deaths, and from zymotic diseases, 58.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer, reports :

In the four weeks ending January 28th, 1893, there were 2029 deaths, of which number 684 were under five years of age. Annual death-rate, 21.9 per 1000. Deaths from consumption numbered 215.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the four weeks ending January 28th, 1893, there were 511 deaths, of which 201 were under five years of age. Annual death-rate, 26.04 per 1000. Zymotic diseases caused 75 deaths, and consumption, 39.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of December :

The number of deaths recorded in the different towns and cities, from which returns have been received, was 484, in an estimated population of 318,836. The annual death-rate upon the estimate given is 18.12 in every 1000 of the population.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of December were :

Pneumonia, consumption, bronchitis, diphtheria, typhoid-fever, catarrh, malarial-fever, whooping-cough, influenza, scarlet-fever, and rheumatism. Consumption was reported in the counties of Anderson, Cocke, Davidson, Dickson, Hamilton, Knox, Maury, Montgomery, Moore and Rutherford; typhoid-fever in Anderson, Claiborne, Davidson, Houston, Humphreys, Lincoln and Stewart; whooping-cough in Davidson, Humphreys, Lincoln, Montgomery and Moore; influenza in Decatur, Dickson, Hamilton and Williamson; scarlet-fever in Davidson, Montgomery and Shelby.

Chattanooga, 27,000 white and 13,000 colored: Total deaths in December, 40—25 of which were colored, and 15 under five years of age. Annual death-rates, 6.66 for the white population, and 23.07 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored: Total deaths in December, 49—20 of which were colored, and 17 under five years of age. Annual death-rates, 11.12 white, and 26.33 colored, per 1000.

Memphis, 33,800 white and 27,700 colored: Total deaths in December, 90—47 of which were colored, and 16 under five years of age. Annual death-rates, 15.26 white, and 20.35 colored, per 1000.

Nashville, 54,595 white, 33,159 colored: Total deaths in December, 119—65 of which were colored, and 32 under five years of age. Annual death-rates, 11.87 white, and 23.52 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 246,000: U. O. B. Wingate, M.D., Health Officer, reports for the month of January 380 deaths, of which number 169 were under five years of age. Annual death-rate, 18.24 per 1000.

From zymotic diseases there were 63 deaths, and from consumption, 29.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 541,885 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of November, 1892, shows that there was a total mortality of 1211, of which number 687 were of children under five years of age. From infectious and contagious diseases there were 93 deaths ; from pneumonia, 64 ; from meningitis, 84 ; from gastro-enteritis, 83 ; still-births, 113.

MORTALITY STATISTICS ABROAD FOR THREE MONTHS ENDING
DECEMBER 31ST, 1892.


Population, total number of deaths, annual death-rate per 1000, and deaths from small-pox :

London, 4,263,294 ; 19,614 ; 18.4 ; 4. Glasgow, 669,143 ; 3800 ; 22.7 ; 6. Liverpool, 513,790 ; 2839 ; 22.1 ; 2. Manchester, 510,998 ; 3067 ; 24.0 ; 2. Birmingham, 483,526 ; 2431 ; 20.1. Leeds, 375,540 ; 1885 ; 20.1 ; 7. Dublin, 349,594 ; 2127 ; 24.3. Sheffield, 329,585 ; 1619 ; 19.6 ; 6. Edinburgh, 264,787 ; 1575 ; 23.8 ; 1. Belfast, 255,922 ; 1645 ; 25.7. Bristol, 223,592 ; 980 ; 17.5. Bradford, 219,262 ; 1004 ; 18.3. Nottingham, 215,395 ; 1037 ; 19.3. Hull, 204,750 ; 1154 ; 22.5. Salford, 201,058 ; 1393 ; 27.7 ; 1. Newcastle, 192,205 ; 891 ; 18.5. Portsmouth, 163,667 ; 649 ; 15.9. Norwich, 102,736 ; 466 ; 18.1. Amsterdam, 406,302 ; 1900 ; 18.7. Rotterdam, 203,486 ; 1095 ; 21.5. The Hague, 156,497 ; 805 ; 20.6. Paris, 2,424,705 ; 11,775 ; 19.4 ; 14. Lyons, 416,029 ; 1891 ; 18.2. Marseilles, 406,919 ; 2532 ; 24.9 ; 2. Nantes, 127,482 ; 769 ; 24.1 ; 1. Saint-Étienne, 117,875 ; 710 ; 24.1 ; 1. Havre, 116,369 ; 708 ; 24.3. Reims, 105,408 ; 555 ; 21.1. Nice, 97,720 ; 508 ; 20.0. Nancy, 87,110 ; 435 ; 20.0. Amiens, 83,654 ; 441 ; 21.1. Besançon, 54,636 ; 314 ; 23.0 ; 2. Berlin, 1,662,237 ; 7244 ; 17.4. Hamburg, 637,686 ;

3132 ; 19.6. Leipzig, 375,707 ; 1912 ; 20.4. Munich, 366,000 ; 1962 ; 21.4. Breslau, 324,143 ; 2006 ; 24.8. Cologne, 290,000 ; 1510 ; 20.8. Dresden, 286,200 ; 1310 ; 18.3. Magdeburg, 215,760 ; 1066 ; 19.8. Frankfort, 188,050 ; 693 ; 14.7. Hanover, 171,148 ; 777 ; 18.2. Düsseldorf, 153,968 ; 676 ; 17.6. Königsberg, 164,996 ; 1028 ; 24.9. Nuremberg, 151,362 ; 659 ; 17.4. Altona, 148,615 ; 707 ; 19.0. Chemnitz, 147,863 ; 889 ; 24.0. Elberfeld, 131,181 ; 465 ; 14.2. Stuttgart, 129,034 ; 577 ; 17.9. Bremen, 127,993 ; 485 ; 15.2. Strassburg, 127,147 ; 588 ; 18.5. Dantzic, 122,091 ; 611 ; 20.0. Stettin, 121,512 ; 655 ; 21.6. Barmen, 120,284 ; 454 ; 15.1. Crefeld, 110,170 ; 464 ; 16.8. Halle, 107,551 ; 534 ; 19.9. Aix-la-Chapelle, 105,923 ; 492 ; 18.6. Essen, 83,025 ; 579 ; 27.9. Mayence, 73,877 ; 352 ; 19.1. Metz, 62,122 ; 241 ; 15.5. Brussels, 476,862 ; 2137 ; 18.1 ; 3. Vienna, 1,406,933 ; 7167 ; 20.4 ; 1. Buda-Pesth, 526,263 ; 3378 ; 25.7. Prague, 317,614 ; 1609 ; 20.3 ; 68. Trieste, 157,343 ; 1046 ; 26.6 ; 1. Lemberg, 130,333 ; 1082 ; 33.2 ; 50. Gratz, 114,272 ; 667 ; 23.3. Brünn, 96,186 ; 614 ; 25.5. Cracovie, 76,116 ; 628 ; 33.0 ; 32. Debreczin, 59,889 ; 383 ; 24.2. Presbourg, 56,746 ; 375 ; 26.4. Pilsen, 51,860 ; 264 ; 20.4. Linz, 48,565 ; 323 ; 26.6. Copenhagen, 326,000 ; 1467 ; 18.0. Stockholm, 248,051 ; 1073 ; 17.3. Christiania, 151,130 ; 620 ; 16.4. Helsingfors, 64,225 ; 374 ; 23.3. Warsaw, 490,417 ; 3939 ; 32.1 ; 153. Odessa, 302,000 ; 2049 ; 27.1 ; 37. Turin, 328,777 ; 1381 ; 16.8. Venice, 161,130 ; 763 ; 18.9 ; 5. Bucharest, 206,000 ; 1665 ; 32.3.

VITAL STATISTICS OF FRANCE.—There were in France, in 1891, 877,882 deaths and 866,377 births. Here, says the *Journal Officiel*, is a subject for reflection for the historian and the philosopher. There is a historic tradition that every nation whose people are not constantly on the increase is in a state of decadence. What, then, can be said of a country whose population is decreasing? Can it be supposed that France is in a state of what is called physiological misery? It scarcely seems so. Can it be said, on the other hand, that France is in a state of decadence? Hardly, when one considers all that the nation has done during the past twenty-two years.

EDITOR'S TABLE.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

THE NATIONAL QUARANTINE LAW, printed in full on other pages of this number, which received the President's signature on the 15th ultimo, may, for a brief period, quiet the nerves of the leaders of the New York Academy of Medicine who have attained distinction by exclusive devotion to specialties with little or no relation whatever to epidemic diseases. But the votaries of preventive medicine who are familiar with the obstacles against which all attempts to establish a genuine national health service have had to contend, since it was first attempted in 1879, will be at a loss to perceive any prospect of better results under the "additional quarantine powers" conferred by this new law.

It is the misfortune of those physicians who have had the least to do with epidemic diseases that they are more or less like the poor clam diggers in the vicinity of Fire Island—they become panic-stricken at their approach—and then, like drowning men who catch at straws, they rush to conclusions, based upon superficial knowledge, more likely to confuse legislative action than to guide it. And when the panic is over they again relapse into indifference. It was under the spur of an epidemic that a national board of health was created in 1879. The excellence of its work, until it was supplanted by the Marine Hospital Service, under the auspices of the Secretary of the Treasury, is well known. But the interest of the medical profession in its work, like that of the public, almost wholly ceased soon after the Board succeeded in stamping out the epidemic which had been the occasion of its creation. Yet the profession—hereabouts at least—like other people, have apparently forgotten, or, perhaps because the danger was not at their own doors, they failed to notice the first assumption of the national health service, under the auspices of the Secretary of the Treasury, in dealing with yellow-fever at Brownsville, Tex., in 1882. It established a cordon of more than thirty

miles in extent round about to confine the people to the infected city until the coming of cold weather in November, by which time Surgeon-General John B. Hamilton thought—by telegraph to the physician in charge—it would be safe for him to proceed with the disinfection of the city! Six years later similar measures were practised in Florida. In both cases the epidemic prevailed until it was suspended by cold weather. And last summer—the twenty-days' confinement to infected ships! This act was under the same auspices—it was the *national*, and not the State quarantine, that did it. And, unfortunately, though under Dr. Hamilton's successor it was on the same lines, it was the *cordon* system in its most deadly application. It has justly gained the reprobation of sanitarians everywhere—even of the Academy of Medicine Advisory Committee of the Chamber of Commerce, after calling to its assistance Surgeon-General Wyman, of the Marine Hospital Service, who deputed Surgeon J. J. Kenyon to act in his stead. "We believe," they said, "that under ordinary conditions the period of quarantine detention of healthy persons when removed, as they should be at once on their arrival in port from *all known or possible sources of infection* and properly placed, should be five days, in case no cholera occurs among them."

This conclusion was in accordance with Health Officer Jenkins's programme, when the interference came requiring *twenty days'* confinement to infected ships.

Yet this same committee—at least several of the same gentlemen who constituted it—have been active promoters of one of the most incongruous measures that ever passed Congress for any purpose.

What the New York *Medical Journal* says of Section 6—that it "partakes of the nature of a Delphic oracle"—is equally applicable to Section 3—indeed, to the law as a whole. And, as if the law were not already sufficiently objectionable, the Board of Medical Officers, to make rules for its administration, has ex-Supervising Surgeon-General Hamilton at its head!

Fortunately every State in the Union has the power to impose regulations against the introduction of disease by commerce, as also against local conditions promotive of them;

and all, or as many of them as may so agree, have the power to impose inter-State regulations for mutual protection against epidemic diseases. Indeed, not only every State, but every city, seaport, village, and town has similar power. It has been by the exercise of such power that, except the progress made in army and naval hygiene, and by the assistance of the National Board of Health during the brief period it was sustained, all the progress in preventive medicine in this country hitherto has been made by the people in their own behalf. And it has been by the neglect of the proper authorities to exercise the powers with which they are invested in this regard that epidemics have prevailed.

The people have never had greater reason to bestir themselves against the introduction of disease than they have at the present time. Epidemic diseases are always alive somewhere, and they are ever on the alert for the easiest means of access to the largest resources for sustenance—populous places with filthy surroundings.

Quarantine has been aptly described by an English writer as an elaborate system of leakiness at best ; but until the people in this country learn to imitate the English by giving more attention to local sanitation than they have heretofore given, we must still make the best use of quarantine we can, notwithstanding its leakiness.

With regard to protection at the port of New York in particular, Governor Flower has already shown his earnest of the State's ability by the promptitude of his action last summer. Health Officer Jenkins has also demonstrated the courage of his convictions, based upon a good deal better practical knowledge of how to control epidemic diseases than was shown by the Academy committee, or has ever been shown by the Marine Hospital Service. And we are gratified at being able to state that the additions to and improvements of the quarantine establishment now in process are well calculated to meet any emergency likely to arise.

Notwithstanding, in this great centre of more than three million people, composed of all nationalities, comprising many new-comers from other lands with different customs, and not a few in squalor, extending to and including dense populations on the farther side of both rivers and the city of New York in

the midst, no precaution should be neglected by those whose duty it is to protect those who are not able to protect themselves. Every individual of discretion in this great community should be made to feel that he, too, has a duty to perform; that the possible case that may leak through or circumvent quarantine may not find food at his door.

The health authorities may be never so vigilant, yet there are some people so perverse and so determined to hold other people responsible for their own sins that they *will* keep food for cholera and other diseases despite every effort of the other people who labor in their behalf.

THE OVATION TO HEALTH OFFICER JENKINS on the 11th ultimo was a well deserved compliment to his successful efforts in keeping the cholera at bay last summer, notwithstanding the embarrassments with which he was beset. We regret that, by reason of the pressure of other matter, a fuller account of it must be deferred to our next issue.

LITERARY NOTICES AND NOTES.

A MANUAL OF BACTERIOLOGY. By George M. Sternberg, M.D., Deputy Surgeon-General U. S. Army; Director of the Hoagland Laboratory, Brooklyn, N. Y.; Honorary Member of the Epidemiological Society of London; of the Royal Academy of Medicine of Rome; of the Academy of Medicine of Rio de Janeiro; of the American Academy of Medicine, etc. New York: William Wood & Company.

This work will be especially appreciated by sanitary officials in this country, as it will be also abroad. It gives a very full account of all known pathogenic bacteria, and of the experimental evidence relating to their destruction by means of various germicidal agents.

Section 13, Part II., is particularly devoted to "Practical Directions for Disinfection."

The volume comprises nearly nine hundred pages, is elaborately illustrated throughout by carefully prepared wood engravings and "half tone" process cuts, many of the latter being direct reproductions of photomicrographs by the author himself, and others by leading European bacteriologists. There are also four full-page heliotype plates from photomicro-

graphs of the most important pathogenic bacteria, including the bacillus of typhoid-fever, the bacillus of diphtheria, the spirillum of cholera, the micrococcus of pneumonia, the micrococcus of gonorrhœa, etc.

In Part I. a full account is given of "Classification, Morphology, and General Bacteriological Technology." Those who desire to obtain a practical knowledge of bacteriological technique will find in this portion of the work detailed instructions with reference to the preparation of culture media, the staining and photographing of bacteria, etc.

In Part II. the "general biological Characters" of bacteria receive special attention, and a full account is given of the various products of their vital activity, including the ptomaines and toxalbumins which have been shown by recent researches to be the direct cause of the morbid phenomena which characterize the infectious diseases.

Part III. relates to the pathogenic bacteria. The three first sections in this portion of the work bear the caption "Modes of Action," "Channels of Infection" and "Susceptibility and Immunity." These sections will be of special interest to health officers, as well as the following sections, which relate to the bacteria which have been proved to be the cause of specific infectious diseases. In Part IV. a detailed account is given of the saprophytic bacteria found in the air, in water, in the soil, in the alimentary canal of men and animals, etc. Finally, we have a very complete bibliography which gives more than 2500 titles, mostly of recent papers representing research work in this field of scientific investigation.

The brief account given indicates the importance and value of this volume, which is the most comprehensive and trustworthy work upon the subject thus far published in the English language. It will no doubt at once take its place as the standard "manual of bacteriology" for students and practitioners of medicine in this country, for it fairly represents the present state of knowledge in this important and interesting department of biological and medical science.

MINERAL SPRINGS AND HEALTH RESORTS OF CALIFORNIA,
WITH A COMPLETE CHEMICAL ANALYSIS OF EVERY IMPOR-
TANT MINERAL WATER IN THE WORLD. ILLUSTRATED.

A PRIZE ESSAY OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA, 1889. By Winslow Anderson, M.D., M.R.C.P., London; M. R. C. S., England; Joint Editor and Publisher of the *Pacific Medical Journal*; Assistant Chair Medical Chemistry and Materia Medica, and Teacher of Chemistry in the Laboratories of the University of California in the Medical and Dental Departments; Member International Medical Congress; Member Congress Hygiene and Demography; Active Member of the American Medical Association; of the Medical Society of the State of California, etc. San Francisco: The Bancroft Company, 1892.

Comprehensive as the title of this work is, it portends a good deal more. It opens with a historical sketch of mineral waters, theorizes on the development of the gases they contain, and their solvent action; classifies them, and describes their therapeutical uses, including baths and their classification and uses, and, incidentally, the functions of the skin—all as a prelude to its chief purpose, the special display of the mineral springs and health resorts of California. Of the whole three hundred and eighty-four pages of the book following the introduction, three hundred and eleven are devoted to the springs of California and its history. To those of all the world besides, seventy-three. But this is not wholly a fault, for of all the rest, except of California, allowance may be made for a good deal that has been before written. The evident purpose of the author has been to bring the California springs to the front; and this he has done to an extraordinary degree. They are shown to comprise every variety, and to be adaptable to every conceivable condition requiring the use of mineral waters. Doubtless they are equal to any in the world, but evidence does not show them to be superior. Their properties, as the rest, are best shown by their composition and conditions, the chemical constituents and the gases they contain, and their available temperature. The very full description of these qualities constitutes the chief value of the book.

Indeed, as for the rest, the author's description of their therapeutical application, particularly (pp. 51 and 65) that salines and mineral ingredients are absorbed by the skin, notwithstanding his citations, is self-condemning. For if it

were true, fatal results would frequently occur from bathing in filthy water or saline water of various kinds, and to sailors adrift; because even sea water in its greatest purity always holds in solution salines which would be poisonous in the quantity that would be absorbed, if absorbable at all, by long exposure to it. The longer endurance of thirst, consequent upon the continued immersion of shipwrecked persons and by others from the persistent wetting of their clothes, is due to the arrest of cutaneous evaporation, and to the effect upon the nerves. The author's description of the anatomy and functions of the skin is defective in that he has overlooked the construction and exceeded the limits of the sweat glands, that they perforate the skin spirally, that the pores are their *only* opening externally. It is well known, however, that if the cuticle be broken—removed by blister, for example—the denuded surface is actively absorptive, and that certain *oleaginous* solutions, such as the ointments of mercury and some of the alkaloids, may be introduced by friction. But these conditions are wholly apart from those common to the bath.

Again, the author's *classification* of the bath (p. 56) is alike remarkable, and can scarcely be accounted for otherwise than by a mistake. "The tepid, from 60° to 95° F.," is a greater sweep than we have ever before seen. Surely no one accustomed to the cool bath would ever consider 60° F. tepid. The mistake appears to be that the author has omitted the cool bath from 60° to 75° from his classification. After which should follow the tepid, from 75° to 95°.

Otherwise (pp. 55–58) the author's cautions to invalids unaccustomed to the cold, or even the cool bath, and with regard to the duration of the bath, are eminently worthy the attention of all who would avail themselves of the benefit of bathing.

The work concludes with a historical sketch of the State, a brief chapter on its climate, and the best time of the year to enjoy it.

HANDBOOK OF INSANITY FOR PRACTITIONERS AND STUDENTS. By Dr. Theodore Kirchoff, Physician to the Schleswig Insane Asylum, and Privatdocent at the University of

Keil. Illustrated with eleven plates. New York : William Wood & Company.

This work contains much necessary knowledge for students, and is, besides, of much practical utility to physicians as a ready reference book on subjects ever likely to present themselves. It is divided into two parts. Part I. opens with an introductory chapter on the "Anatomical Basis and the Location of Mental Disturbances." This is followed by classification, importance, and mode of action of the causes of insanity in detail; signs and course of mental disorders; diagnosis and treatment; and a historical sketch of psychiatry in general. The second part treats of special diseases—simple mental disorders, melancholia, mania, periodical insanity, and paranœa in its different phases, and mental disorders associated with permanent anatomical changes in the brain or with general diseases.

THE FOOD INSPECTOR'S HANDBOOK. By Francis Vacher. London : The Record Press, Limited, 376 Strand, W. C.

This is a compilation of a series of excellent contributions on the subject of unsound food, which have appeared in the *Sanitary Record* since October, 1885, which we take pleasure in commending to all food inspectors in the health service. No food inspector can afford to do without such knowledge. This book comprises it in the smallest possible space, and yet so clearly as to be eminently practical.

THE MICROSCOPICAL EXAMINATION OF POTABLE WATER. By George W. Rafter, Member of the Rochester Academy of Science. Price, 50 cents. New York : D. Van Nostrand Company.

A pocket manual of the Science Series, comprising the study of water in its biological relations, and the most reliable methods of both qualitative and quantitative examinations of the organisms which infest it. The author has evidently very thoroughly studied the subject, and the clearness with which he describes it, explains the processes of examination and elucidates the results, are so commendable that all students of water should possess a copy. A list of the literature of the subject is appended.

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CREMATION AND ITS IMPORTANCE IN CHOLERA.

ABSTRACT OF DISCUSSION AT STATED MEETING OF NORTH-WESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK, JANUARY 18TH, 1893.

By Dr. ROBERT NEWMAN.

DR. NEWMAN had prepared an exhaustive paper on this subject, but in order to save time he omitted not only a carefully prepared bibliography, but also a number of points having a more or less important bearing on the subject.

Cremation, he said, is a very old method of disposing of the dead, and was the legal form of burial among the ancients, particularly in Greece and Rome. It was revived about twenty years ago, but made very little progress for about ten years. At the present time it is acknowledged by all unprejudiced and intelligent persons, and by scientists and sanitarians particularly, to be the best method of disposing of the dead. The present method of cremation consists in exposing the body in a retort to a temperature of about 2000° F. No fire touches the body, but this heat is sufficient to make the corpse incandescent, and eventually to reduce it to a gray powder or ash weighing about four to six pounds. This is usually placed in terra cotta or marble urns suitably inscribed, and these urns may be kept by the relatives, deposited in a columbarium, or buried.

There are now fifteen crematories in this country, and between 1884 and 1892, 2017 incinerations have taken place,

868 of this number being at New York. The Earle Memorial Crematory, at Troy, is the most costly in the country. Scattered over this country there are now thirty-two active cremation societies. From 1876 to 1887, in the nineteen crematories of Italy, 952 bodies were incinerated. There are nineteen cremation societies in Germany, but progress in this direction is slow, owing to the red tape in the government bureaus.

Dr. Petrie, of the Department of the Interior in Berlin, published a paper in which he claimed that cemeteries were perfectly safe if situated in proper soil and managed properly, but in the discussion on his paper it was shown that bacilli had been found in the earth three years after bodies had been buried. It has also been shown that in places where persons dying of yellow-fever have been buried, bacilli identical with those found in the excretions of the yellow-fever patients have been found only a few inches below the surface of the ground. The question of the effect of cemeteries on the health of the surrounding population assumes unusual importance in the neighborhood of large cities like New York, where there are no less than forty cemeteries.

Nothing can be found in the Bible which can be construed as opposed to cremation, and many clergymen now favor it. "He who can make men from the dust can bring them from ovens as well as from graves." The vital germ is no more destroyed by a few moments of intense heat than by a slow putrefaction for fifty years. Cremation is a religious rite among the Buddhists in Japan. The doctor then read a long list of names of eminent medical, clerical, and literary people who are in favor of cremation, and said Professor Virchow had written a letter in answer to a request from the Cremation Society of Berlin for a medical expert opinion as follows :

"To the Board of the Cremation Society, Berlin, December 6th, 1892 :

"In answer to your kind letter of the beginning of October, in which the directory besought me to give a medical opinion about the usefulness of an introduction of facultative cremation, especially of such persons as have died from cholera or other epidemics, I declare in full maintenance of my opin-

ion, given already in 1881 in the German Landtag, that I consider cremation very useful indeed with respect to economical as well as sanitary matters.

“In times of great epidemic diseases cremation should be considered an entire necessity. Strong heat without the act of burning has already proved, according to my experience, a good means by which the micro-organisms and contagious matters could be destroyed; of course genuine burning grants a far better security still.

“Big cities should try on this account to get their dead cremated, as mass-burials in grounds, which are near populous districts, every now and then revive the fear that some danger might not be excluded for the neighboring dwelling-places.

“RUDOLF VIRCHOW.”

THE PROPAGATION OF CHOLERA.

Cholera comes to the shores of America as an epidemic by the natural ways of travel and commerce, either by travellers and immigrants or by baggage and merchandise, and if once introduced, spreads with great rapidity through excretions, clothing, bedding of the patients, and their dead bodies. Contagion is also carried by insects, water, and earth.

Gatti, Grassi,* Koch, Simmonds, and others are authorities that insects and flies have carried cholera. They kept flies who had been seen sitting on cholera corpses at their laboratories, and after some time found the common bacilli.

Water in different ways may be dangerous. It is well known that anybody who drank water from the Elbe during the last epidemic in Hamburg was a suspect, and was kept under observation. Biernacki† found in the well in Lublin, a suburb of Hamburg, cholera bacilli. That well was near a single house, in which in a few days twelve persons were seized with cholera. All these had been drinking from that well. His experiments were made very carefully, and he found the specific bacilli in large numbers two days after the beginning of his examinations.

Professor C. Fraenkel, of Magdeburg, found comma bacilli

* Eulenburg, *Real-Encyklopædie d. ges. Heilk.*, IV., p. 234.

† *Deutsche Med. Wochens.*, No. 42, 1892.

in the Rhine-Ruhr Canal, where a boat had been anchored whose owner had died of cholera, and where his excretions had been emptied.

Water in the hold of a vessel is also dangerous. In the hold of a boat on the Elbe Lubarsch found bacilli. On the same boat a child had died of cholera eight days previous.

Earth in graves through burials may cause a new epidemic.

Sanitary Commissioner Dr. Doering in Berlin has shown that cholera bacilli are living in graves, and may be liberated by water, and thereby create the disease.

That graves are dangerous in this way can be proved by an incident in New York. During the cholera epidemic of 1866 some emigrants were buried in Ward's Island, and nearly at the same time a new epidemic appeared in the city opposite the island, in Ninety-third Street, near Third Avenue. Similar instances have been observed and have been mentioned before.

As a recapitulation, cholera is propagated by immigrants, merchandise, clothing, excretions, water, earth-corpses, and insects.

HOW IS CHOLERA TO BE PREVENTED?

The best prevention is to keep cholera and bacilli out of the country, but if it comes to keep and treat it in quarantine.

If it is in quarantine, the best factor to prevent an epidemic and to destroy any contagious carrier is to follow Virchow's advice, *heat vel cremation!* The experiment is not new; has been done and always with success.

The following letter shows how heat, even in an imperfect manner, ended an epidemic of yellow-fever:

204 WASHINGTON STREET, }
BROOKLYN, N. Y., February 5, 1889. }

DEAR SIR: I am most decidedly in favor of burning the dead, and cannot comprehend why so many object to it. The terrible diseases that from time to time cast communities of human beings into an abyss of grief would lose their hold in a short time if the victims were promptly consigned to the purifying action of the flames. What possible good can there be in burning clothes and furniture, if the infected flesh be allowed to remain in existence?

In 1868 there was a dreadful epidemic of yellow-fever in Lima, Peru, as many as three hundred patients dying each day. From the beginning Dr. Le Plongeon, then practising in that city, urged the cremation of the dead. It was impossible to bring the public mind to contemplate such a course. Finally an arrangement was made to keep large fires on the trenches filled with corpses, public attention not being drawn to the fact. At once the plague abated and soon died out.

ALICE D. LE PLONGEON.

Sir Spencer Wells recommends cremation in cholera in a communication to the *Times* and other articles. He says that graves sooner or later will renew cholera epidemics through the earth, water, or air.

Koch, F. Kuechenmeister, Blaschko,* Herzberg—in fact, all sanitarians, recommend cremation, and during the last scare, in 1892, the New York quarantine authorities ordered the burning of clothing and bedding, and the cremation of cholera dead in Swinburne Island, when New York and the whole United States were in great danger.

The care, hard work, and watchfulness of our health officer of the port of New York, under adverse circumstances, prevented the cholera from entering New York and America last summer, and there is no doubt that it will be kept out of America during the next year. With the former experience and better precautionary measures, Dr. Jenkins will be even more prepared to keep the pestilence out of America.

If suspects arrive, they must be kept in quarantine under observation a reasonable time, which can be done without going to extremes. If cholera cases appear, they must be treated, and the ships and people disinfected, as also all excretions thoroughly disinfected. Dr. A. S. Ashmead, in *Science*, gives four rules to prevent cholera, as follows :

1. Let the drinking water be perfectly isolated—that is, keep the cholera germs from the drinking water.
2. Let the fæces and other discharges be disinfected with quicklime or common whitewash. This is, by the way, what Professor Koch recommended to the Central Sanitary Board of Japan.

* *Deutsche Medizinal Zeitung*, No. 60, 1892.

3. Let the clothing be disinfected with dry heat, 212° Fahrenheit, and afterward with steam.

4. Finally, let the cholera corpse be cremated instead of buried.

It may be added that it is necessary to disinfect thoroughly the rooms, furniture, or ships wherein persons were sick with cholera, and sterilize drinking water and milk. A strict observation of all possible carriers of contagion must be maintained.

Vaccination has been practised as a preventive of cholera. The experiments so far do not warrant a decision of its success.

In cases of danger the introduction of crematories, either stationary or portable, is necessary.

A German scientist proposes to disinfect the Elbe or other rivers and sewers by electricity. His argument is that an electric current will chemically change the water and thereby destroy cholera bacilli. This may be possible, but at present is only a theory.

It has been proven that cholera can be kept from entering America by proper means at the quarantine station. The question now arises, Is it better to continue a plan which has been successful, and will be successful again, or is it wise to suspend immigration, exposing thereby the whole Canada border line—a very convenient way for the introduction of cholera—and at the same time ruining the American commerce and the steamship companies, besides depriving the country of the capital and labor of desirable immigrants?

The question has not been settled by the Academy of Medicine's Advisory Committee, nor proclamations, nor our Solons in Washington.

The laws of the different States vary very much respecting cremation, but with few exceptions it is not legalized in America; it is only tolerated. At present our Board of Health does not give a permit for cremation, but issues one instead for burial at Mount Olivet, when it is desired that bodies shall be cremated at Fresh Pond. Every one should decide this matter for himself, but the cremationist has a right to demand that cremation shall at least be made a legal form of burial.

DISCUSSION.

Dr. S. H. Dessau thought cremation a very important measure in connection with cholera ; but as *Dr. Sternberg* claims that the germ of yellow-fever has not yet been discovered, he thought it was very doubtful if the organisms found just below the surface of the soil, where yellow-fever corpses had been buried, were really characteristic yellow-fever bacilli.

Dr. William Stevens only wished to express the hope that this very interesting paper would be published.

Dr. C. A. Leale said that he had recently made a personal investigation of the subject of cremation. It was a mistake to suppose that the ash remaining after incineration is a gray powder. The residue is a white, absolutely pure, inert substance, which would do no more harm, if eaten, than would a piece of chalk. It is not all in powder, for portions of bone remain large enough to enable them to be identified. As a proof of this the speaker exhibited a fragment which he had broken off from the upper end of the humerus after the body had been incinerated by exposure to a temperature of 2500° F. The femora, humeri, and sometimes even the ribs and bones of the cranium can be differentiated. He had in a large bottle at home a specimen showing how it was possible from these so-called ashes to identify the body of the person who has been cremated. He had personally superintended the cremation of a body weighing two hundred and forty pounds. The skeleton was a small one, and as the person had suffered from dropsy, a good deal of this weight was represented by water. Accordingly the residue after burning weighed only a little over five pounds, whereas the average weight of the residue is seven pounds.

Dr. P. C. Cole said that in February, 1883, he read a paper on cremation, in which he took the ground that the bodies of all persons dying of contagious diseases should be cremated for the preservation of human life, as cremation destroys all disease germs. There is nothing about it to offend the most fastidious ; it is a rapid combustion instead of a slow one performed by nature. He did not doubt that the population of Brooklyn is suffering to-day from infection from the numerous

large burial grounds about that city, and in country places he had known of sickness occurring in the neighborhood of cemeteries which could be traced with reasonable certainty to them. He had seen portions of bone left after cremation which were as large as the hand. It could not be denied that a few cases of criminal poisoning, which are now detected by our present system, might pass unnoticed if the bodies were cremated, but even admitting the possibility of this, it would be a small matter compared with the hundreds of thousands of human lives which are sacrificed by the present method of burial. Cremation can never be enforced here by law except in public institutions, but the influence of prominent men, and especially of medical men, will accomplish much in the way of popularizing cremation, and it should certainly be made a legal mode of burial.

Dr. J. H. Fruitnight endorsed what had been said about the advantages of cremation in cases of cholera. Most of the opposition to it is the result of ignorance, many persons believing that the body is placed immediately in the fire. Another objection is the liability of cases of criminal poisoning to escape detection.

Dr. J. Blake White also spoke of the effect it would have in shielding crime, although he favored cremation as a sanitary measure.

Dr. Frank Grauer said that in view of the fact that the two great sources of infection in cholera are the water and the soil, cremation should be insisted upon, at least for cholera corpses. Last fall the cases of cholera dying on Swinburne Island were all cremated, but those dying of cholera in this city were allowed to be buried in zinc-lined caskets, there being no law compelling cremation under such circumstances.

Dr. E. S. Peck commented upon the powerful influence which an authoritative opinion like that of Virchow would have in promoting cremation.

Dr. F. Peterson said he had been interested in cremation for a number of years. In 1881 he visited the crematory of Gotha, and last year the one at Milan. In 1881 he had published a paper on the subject, in which he had presented the arguments in its favor. The most important valid objection to cremation is the concealment of criminal poisoning. In

this connection it was interesting to recall the statement made by a well-known chemist in discussing the paper just mentioned. He said that alkaloidal poisons are destroyed by burial as well as by cremation, so that the only poison which would not be discovered after cremation and yet which might be detected after ordinary burial was arsenic. He also stated that only about one body in five hundred thousand was exhumed.

Dr. H. L. Taylor said that he had been personally in favor of cremation for many years, and had frequently so expressed himself. It was very important that public sentiment should be aroused to the necessity of making it a compulsory method of disposing of those dying of serious contagious diseases, and he thought the Society should do all in its power to disseminate this feeling. He hoped the views expressed in the paper and in the discussion would be given the widest publicity.

Dr. Newman, in closing the discussion, said that the points brought out in the discussion had all been covered in his paper, but some had been omitted in reading. Cremation does not interfere with any dogma or religious creed. The law of Massachusetts in regard to cremation makes it difficult for poisoning cases to escape detection, for it provides that it shall be the duty of certain medical officials to make a special investigation previous to cremation whenever there shall be the slightest suspicion of foul play. Cremation does not interfere with judicial investigation any more than does the present method of embalming, which is now almost universally employed by undertakers. Cremation also does away with the possible horrors of being buried alive. In short, cremation is cleaner than burial, it avoids the constant visits to the cemeteries, the care and expense of tombs, and allows the ground now devoted to cemeteries to be put to a better use. In regard to the yellow-fever germs in the soil, he had said that the earth was found to contain a material which was identical with that found in the excretions of yellow-fever patients. When the process of cremation is completed, on looking through the windows of the retort, one sees the body unchanged in shape, but when the retort is opened, and air admitted, it falls to pieces.

Dr. Leale said he would be sorry to have the statement go on record that no religious dogma opposes cremation, for the Roman Catholics are strongly opposed to it.

Dr. Newman replied that in 1886 the Pope forbade it, but since then he has not expressed any opinion on the subject. He had in his possession letters from Catholic priests endorsing cremation, and while many priests will not attend cremations, many others do not object to doing so. In Italy, where crematories are most numerous, there is the largest number of Roman Catholics; it is rather an individual matter with the bishops than a matter of creed. The same diversity of opinion regarding cremation is found among the rabbis, as well as among the clergy of any denomination.

A GARBAGE-CREMATORY TEST.—The garbage crematory erected in the city offal-yard at the foot of East Brookline Street, on Albany Street, by the Brown Developing Company, was tested to-day in the presence of members of the city government, and the results were apparently quite satisfactory. The crematory is about twenty-three feet long, ten feet wide, and ten feet high, and has fire-brick walls a foot thick, covered with boiler steel, braced with great iron rods to keep them from being forced apart by the heat. The receptacle for the garbage has a capacity of several tons, and is fed through openings in the top with iron covers. The furnace in which the fire is started is a part of the structure, and is fed with crude petroleum conducted by means of pipes from a large tank a considerable distance away. A wood fire is first started and then the oil is turned on, and, with other devices for generating inflammable gases, an intense heat is soon produced. A blower, run by a six-power steam-engine, forces this fiery mass into the receptacle for the garbage, which is slowly fed in until it becomes a burning mass. After that the combustion is very rapid, the garbage disappearing almost as rapidly as it can be shovelled in. There are two chambers for its reception, and there is a system of draughts by which all the smoke and gases go from one to the other, making a complete circuit of the crematory, and then what is left escaping to the air through a high chimney. In the test to-day all kinds of stuff were fed into the furnace

just as they came from the places where they were collected, tin cans, bottles, bones, and similar matter being disposed of. From twenty-five to thirty gallons of oil, costing about three cents a gallon, were used each hour, consuming from four to five tons of offal an hour. Scarcely any ashes are made. The amount of garbage collected by the city each day is two hundred tons, and it is estimated that this can all be consumed by four furnaces at a cost of about twenty-five cents a ton. The whole operation is remarkably free from odor, and scarcely an offensive smell is noticeable as coming from the furnace.—*Boston Transcript*, February 10th.

DISINFECTION AT QUARANTINE STATIONS, ESPECIALLY AGAINST CHOLERA.*

By GEORGE M. STERNBERG, M.D., Deputy Surgeon-General, U. S. Army.

DURING the recent prevalence of cholera on the Hamburg steamships, anchored in the "lower bay" of New York, the writer, in his capacity as "consulting bacteriologist" to the Health Officer of the port, gave considerable attention to questions relating to the practical measures of disinfection required under such circumstances as then existed.

The practical questions which confront the sanitary official charged with the exclusion of a pestilential exotic disease may be included in two categories: First, What articles require disinfection? Second, How can these articles be disinfected most expeditiously and economically?

An intelligent answer to these questions requires an exact knowledge as regards the biological characters of the infectious agent which is to be destroyed, and also with reference to the cost, practical availability, etc., of various disinfecting agents.

The principal biological characters of the cholera spirillum had been ascertained by bacteriologists before the recent outbreak of cholera in Europe. But, before giving a positive

* Read before the Section in Public Health of the New York Academy of Medicine, January 18th, 1893.

opinion with reference to certain questions which presented themselves upon the arrival of cholera-infected ships in the port of New York, the writer considered it necessary to make some additional experiments, the results of which will be given in the present paper.

These experiments were made at the Hoagland Laboratory, Brooklyn, by myself and Dr. E. H. Wilson, associate in bacteriology in this laboratory.

There is a general agreement among bacteriologists and sanitary officials as to the necessity for disinfecting the excreta of cholera patients and all articles which may by any possibility have been recently soiled by such excreta. But there is no general agreement as to the length of time during which soiled articles may remain dangerous, and opinions differ greatly with reference to the necessity for disinfecting merchandise brought in ships from infected ports.

The so-called "practical sanitarians" are, as a rule, far more exacting than the bacteriologists, and some of them demand the disinfection of everything that has come through an infected port, and of every portion of a ship upon which a case of cholera has occurred. In the interest of the public health it is no doubt best to err on the side of safety and to demand too much rather than too little. But, on the other hand, extravagant and unnecessary restrictions upon commerce bring our "sanitary science" into disrepute, and we must be prepared to support the measures recommended by exact experimental data.

At the International Sanitary Conference, held in Rome in 1885, upon the writer's motion a committee on disinfectants was appointed by the president of the "Technical Commission" of the conference.

This committee consisted of Koch, of Germany; Sternberg, of the United States; Proust, of France; Thorne Thorne, of England; Eck, of Russia; Hoffmann, of Austria; and Semmola, of Italy.

One of the conclusions reached by this committee and unanimously adopted by the conference was the following:

"V. Disinfection of merchandise and of the mails is unnecessary; steam under pressure is the only reliable agent for the disinfection of rags (*les chiffons en gros*)."

No doubt the other members of the committee were largely influenced by Dr. Koch's opinion in adopting this conclusion, and no doubt Dr. Koch's opinion was founded upon his own recent experiments relating to the biological characters of the cholera spirillum, and especially upon the fact that it is quickly destroyed by desiccation. He had ascertained that when freely exposed to the air in a thin film upon a cover-glass, its vitality was destroyed in two or three hours. If, therefore, merchandise or the mails should be soiled by material containing this spirillum, while being handled upon the docks at an infected seaport, it would be quickly destroyed by desiccation, unless the infected articles were in a moist condition—in a moist condition the cholera spirillum may retain its vitality for several months.

In the experiments recently made by Dr. Wilson and myself I have endeavored to determine whether desiccation can be relied upon for the destruction of the spirillum when attached to absorbent materials, such as raw cotton or woollen goods. And at the same time I have tested the germicidal action of direct sunlight, which had previously been shown to be considerable in the case of certain other pathogenic bacteria.

The cultures used in these experiments came originally from a case of cholera in New York City (spirillum isolated by Dr. Dunham), and from a case taken to Swinburne Island from one of the Hamburg steamers (isolated by myself from a "rice-water" discharge collected by Dr. Byron). The cultures from the first-mentioned source I have called "cholera D;" those from the second, "cholera S."

In a first experiment (September 26th) Dr. Wilson, at my request, placed small squares (about an inch square) of a sterilized woollen blanket in sterilized Petri dishes. Each piece of blanket was moistened with one or two minims of a bouillon culture, twenty-four hours old, of "cholera D." Some of the pieces were exposed to the direct sunlight upon a balcony having a southern exposure, and others in a dark closet in the laboratory.

After a given time of exposure the piece of blanket was transferred from the Petri dish to a test-tube containing sterile bouillon, and this was placed in the incubating oven at

37° C. The same method has been followed in the other experiments to be referred to later.

In this first experiment it was found that development occurred after two hours' exposure in the sunlight (temperature, 82° F.), but not after four hours; and that no development occurred from the pieces which had been kept in the dark closet for forty-eight hours. In experiments made subsequently by myself with "cholera S" the same result was obtained.

The experiment was varied by putting the square of blanket in a sterilized glass tube, three quarters of an inch in diameter, closed at each end with a plug of cotton. In every instance there was a failure to grow after four hours' exposure to direct sunlight, or forty-eight hours' exposure in the dark closet. Dr. Wilson varied the experiment by moistening pieces of sterilized white filtering paper with a drop or two of bouillon culture, and found that no development occurred when these were subsequently transferred to bouillon after two hours' exposure to sunlight.

That the result does not depend directly upon the heat of the sun is shown by the fact that a thermometer exposed at the same time did not show a temperature above 82° F. in Dr. Wilson's experiments, made in September and October, or above 60° F. in my experiments made in December.

The failure to grow after forty-eight hours' exposure in a dark closet can be ascribed only to desiccation.

In another series of experiments I saturated pledgets of sterilized cotton, half an inch in diameter, with a bouillon culture of the cholera spirillum, and placed them in glass tubes closed at each end with a plug of dry cotton. These tubes were exposed upon the balcony and also in the dark closet. The sun was obscured by clouds most of the time while this experiment was going on, and desiccation occurred slowly. The cotton pledgets exposed upon the balcony were still moist at the end of four days, and still gave a culture of the spirillum when transferred to bouillon. The cotton pledgets exposed in a dark closet (temperature, 70° to 75° F.) remained moist and gave a culture at the end of eight days, but at the end of ten days were completely dry, and no longer gave a culture of the spirillum. Similar cotton pledgets

placed in Petri dishes between four thicknesses of sterilized blanket (four inches square), and placed in a dark closet, were dry at the end of forty-eight hours, and failed to give a culture when transferred to bouillon and placed in the incubating oven. In this case the cotton pledgets were more quickly dried because the moisture was absorbed by the layers of blanket between which they were placed.

Sunlight.—With reference to the experiments in which squares of blanket and of blotting-paper were exposed to the direct rays of the sun, the question arises as to the germicidal action of the sunlight *per se*. This is a question which has already engaged the attention of bacteriologists, and I propose to give a brief account of some of the results obtained before referring to some additional experiments recently made by myself.

[The writer, having considered the experiments of Downes, Blunt, Arloing, Gaillard, Pansini, and Geisler, as to the germicidal action of sunlight, proceeds as follows :]

In my experiments, test-tubes containing sterile bouillon, inoculated with two or three *öse* (platinum loops) of a recent bouillon culture of the cholera spirillum ("cholera S"), were exposed to direct sunlight (in December) upon a balcony of the Hoagland Laboratory having a southern exposure. After such exposure the tubes were placed in an incubating oven at 37° C. No development occurred in the tubes exposed for two hours or more. But when a large number of spirilla were added to the bouillon, by carrying over with the platinum loop a portion of the pellicle from the surface of the culture, a longer exposure was required—development occurred in such tubes after four hours' exposure, but not after five hours.

The question arises whether exposure to sunlight effects some change in the bouillon which renders it unfit for the development of the cholera spirillum. This is answered in the negative by the following experiment : The tubes containing bouillon inoculated with the spirillum and exposed to direct sunlight, having been left in the incubating oven for forty-eight hours and remaining perfectly transparent, were reinoculated from a recent bouillon culture and returned to the incubating oven. In every instance a characteristic development occurred within twenty-four hours.

In a single experiment in which flesh-peptone-gelatin was inoculated by puncture and exposed to the sunlight for six hours, development occurred after such exposure—experiment made in December, when the temperature was too low to melt the gelatin culture medium during exposure.

We conclude, from the experimental data given, that desiccation is a reliable method of destroying the cholera spirillum, and that the International Sanitary Conference of Rome was justified in the conclusion that “disinfection of merchandise and of the mails is unnecessary,” if the merchandise was clean and dry when received on shipboard for transportation, and if it arrives at our ports in the same condition. Also that free exposure to fresh air and sunshine is one of the most reliable methods of disinfecting articles which have attached to them the cholera spirillum.

The washing of the exterior of packages of merchandise with a solution of mercuric chloride, and the fumigation of the mails with sulphur dioxide, which has been insisted upon by some sanitarians in this country, appears to us to be an unnecessary procedure, unless the merchandise has been exposed to infection by the dejecta of cholera patients during the voyage, or after its arrival at our ports. But certain kinds of merchandise are more or less moist when loaded for transportation, and the question arises as to the possible danger of receiving such merchandise when shipped from an infected port or brought upon a vessel upon which cases of cholera have developed during the voyage. In this class of merchandise beet sugar occupies the most prominent place, because a very large amount of it is shipped from Hamburg and other German ports.

As “consulting bacteriologist” to the Health Officer of the port of New York, the writer was called upon to give an opinion as to the possible danger from this source during the recent prevalence of cholera in Hamburg. In the absence of any exact experimental data the opinion given was necessarily guarded, and it was thought advisable to insist upon the disinfection in quarantine of the sacks in which sugar is transported, as there was a possibility of their being infected upon the Hamburg docks; and, being moist, the cholera spirillum might retain its vitality or even multiply during transit. In

order to satisfy myself as to the possible danger from this kind of merchandise, I made a number of experiments with the following results :

(Extract from a letter addressed to Dr. William T. Jenkins, Health Officer, dated October 24th, 1892 :)

“ My experiments show that the spirillum of Asiatic cholera does not grow in an aqueous solution of beet sugar in the absence of any nitrogenous pabulum ; but that in such pabulum, as found in the ‘flesh-peptone solution,’ commonly used in bacteriological laboratories, it grows even when a considerable amount of beet sugar is held in solution. In my experiments it has not grown in bouillon containing fifty per cent of beet sugar, but there has been a more or less abundant development when the amount was less than twenty-five per cent.

“ I infer from these experiments that beet sugar alone will not serve as a pabulum for the growth of this spirillum, and that a fifty-per-cent solution would prevent its development.

“ I have made the following practical experiment to determine how long the spirillum would be likely to survive if by accident the exterior of sacks containing beet sugar should be contaminated by cholera dejecta :

“ Pledgets of cotton were soaked in a recent bouillon culture of the spirillum and were then placed between sacks containing beet sugar in a closed receptacle—a tin wash-boiler. After a period varying from two to eight days these pledgets were removed and placed in test-tubes containing sterile bouillon. In my experiments I have not succeeded in recovering the cholera spirillum in such cultures after the pledgets of cotton had been left between the sugar sacks for four days or more. But other saprophytic bacteria have always developed in these cultures.

“ It may be that failure to develop in these cultures was due to the presence of the saprophytic bacteria, which multiplied rapidly and caused a fermentation of the sugar carried over with the pledgets of cotton to the culture medium ; or it may be that it was due simply to desiccation.”

Since writing the foregoing I have made additional experiments, which show that exposure to a fifty-per-cent solution of beet sugar for forty-eight hours destroys the vitality of the cholera spirillum ; also that pledgets of cotton, thoroughly

wet with a bouillon culture and placed in contact with beet sugar, in a glass jar in which the moist sugar was above and below the cotton pledgets for a depth of three or four inches, when subsequently transferred to sterile bouillon, do not give a culture of the cholera spirillum after forty-eight hours' contact with sugar.

In view of the results of these experiments, I see no good reason for making an exception of this kind of merchandise.

Another question which confronts the quarantine official relates to the danger from green hides, salted fish, and various food products imported into this country from Europe. I have no evidence with reference to hides. If they are perfectly dry, I see no reason for making an exception with reference to them; but I should be disposed to regard wet hides or skins of any kind as possibly dangerous, and I would be governed by the same rule in deciding with reference to the admission of packages of wool, furs, etc. Such articles may be infected with anthrax spores, and the infection of small-pox could no doubt cling to them a long time; but in view of the fact that a piece of blanket moistened with a pure culture of the cholera spirillum and placed in a dark closet is no longer infective at the end of forty-eight hours, it is evident that we have nothing to fear from dry packages of wool from Russia which have been in transit for several weeks, even if the sheep were sheared by persons suffering from cholera (?).

The Imperial Board of Health of Germany has recently published the results of an extended series of experiments made to determine the length of time the cholera spirillum will survive upon the pulp of various kinds of fruit and upon the surface of fresh or salted fish, etc.*

I give below a brief summary of the results reported :

Upon fresh flounder, carp, and shell-fish the spirillum had died out in two days; upon smoked or salted herring, in twenty-four hours. Upon confectionery of sugar, chocolate, or almonds no development occurred after twenty-four hours. At the room temperature, upon sweet cherries the spirillum survived from three to seven days; upon sour cherries, three hours; strawberries, one day; pears, two to five days; cucumbers, five to seven days. At a temperature of 37° C., the

* Abstract in *Ctrbl. für Bakteriologie*, vol. xii. 1892, p. 755.

time during which the spirillum retained its vitality was, as a rule, somewhat less. Upon the surface of dried fruits—cherries, apricots, peaches, plums—the spirillum could not be recovered after one or two days. When the dried fruit was moistened the time was longer—one day on apricots, two days on peaches, five days on cherries, six days on cucumbers.

The writer has recently made a few experiments of the same kind with sweet Florida oranges and bananas. Inoculations were made upon the freshly-cut surface of the fruit from a recent bouillon culture. The fruit, in a glass-covered dish, was placed in the incubating oven at 37° C. No development occurred in bouillon inoculated from the surface of the fruit at the end of twenty-four hours.

In the report from which we have already quoted, the survival of the cholera spirillum in various drinks is also given, as follows: Pilsener beer, three hours; Munich beer, three hours; white wine, five minutes; red wine, fifteen minutes; cider, twenty minutes; cold coffee (six-per-cent infusion), two hours; milk, not sterilized, twenty-four hours; milk, sterilized, still living at the end of nine days; tea, two-per-cent infusion, four days; three-per-cent infusion, one day; four-per-cent infusion, one hour; cocoa, one-per-cent or two-per-cent, still living at the end of seven days.

Uffemann,* in a recently published article, gives some additional data of interest in this connection. In his experiments the cholera spirillum was found to survive upon the surface of slices of rye bread, freely exposed to the air, for twenty-four hours; when the bread was wrapped in paper, for three days; and when it was placed under a bell-jar, for seven days. Upon slightly acid butter the spirillum survived for from four to six days. On roasted meat which was protected from drying by a bell-jar, development still occurred at the end of a week, and upon smoked fish on the fourth day.

According to Uffemann, the spirillum may survive upon the printed pages of a book for seventeen hours, and upon writing-paper enclosed in an envelope for twenty-three hours and a half; upon silver and copper coins it only survives for half an hour; upon the dry hand for an hour, but not for two hours.

* *Berl. klin. Wochenschr.*, 1892, No. 48, p. 1209.

In Uffelmann's experiments the time of survival upon textile fabrics which were apparently dry is stated to have been four days ; upon moist goods the spirillum was found to be still living at the end of twelve days.

Before concluding this paper I desire to make some remarks upon practical disinfection by heat. The low thermal death-point of the cholera spirillum justifies us in giving heat the first place as an agent for the destruction of this pathogenic micro-organism. And most authorities have recommended the use of steam for the disinfection of clothing, blankets, etc.

At the request of the Health Officer of the port of New York, I made (in September) some experiments to determine the reliability of the method of disinfecting the clothing, etc., of immigrants sent to Hoffman's Island from the cholera-infected ships in the lower bay. This is effected in a steam-disinfecting chamber, constructed under the direction of the predecessor of the present health officer. I quote from my report to Dr. Jenkins, dated September 25th, 1892, as follows :

"SIR : In compliance with your written request, dated September 17th, 1892, I have made 'a practical test of the method of disinfection now employed at Hoffman's Island,' with the following results :

"On the 21st inst., at 10 A.M., I found that the wire baskets in the disinfecting chamber had been filled in the usual manner with articles to be disinfected from the baggage of immigrants from the steamship *Scandia*. I placed in five of these baskets, in different parts of the disinfecting chamber, the following test organisms : Cholera spirillum, typhoid bacillus, *Sarcina lutea*. The thermal death-point of these micro-organisms, as determined by my own experiments (1887), is for the cholera spirillum, 52° C. ; for the bacillus of typhoid-fever, 56° C. ; for *Sarcina lutea*, 64° C. These determinations all relate to moist heat ; in dry air the thermal death-point is very much higher. Small pledgets of the cotton were soaked in a bouillon culture of each of the test organisms, and each of these pledgets was placed between two pieces of sterilized woollen blanket two inches and a half square.

"In making the test the cholera spirillum was placed in the

middle and one of the other test organisms above and below it, so that three layers of sterilized blanket covered the spirillum, while but one layer covered externally the pledgets of cotton containing the other test organisms. These packets, each containing the three test organisms on pledgets of cotton between pieces of blanket, were placed in five baskets beneath the clothing to be disinfected, and, so far as possible, in the middle of the loosely piled articles. The doors of the disinfecting chamber were closed, and Mr. Crawford was instructed to follow his usual method with reference to the admission of steam, etc.

" The test organisms were taken to the Hoagland Laboratory, and each pledget of cotton was washed off in ten cubic centimetres of sterile bouillon in the test-tube. From each of these test-tubes a small quantity was transferred by means of a platinum loop (three öse) to liquefied gelatin in other test-tubes, and Esmarch roll-tubes were made. The tubes containing bouillon were placed in an incubating oven at 35° C., and the Esmarch roll-tubes were kept at the room temperature. At the end of four days no development had occurred in any of the tubes inoculated with the cholera spirillum or the typhoid bacillus; but two of the bouillon cultures contained *Sarcina lutea*, and the corresponding roll-tubes contained colonies of this micro-organism, showing that there was a failure to destroy the sarcina in two out of five of the exposures made. . . ."

Now, there is a fact connected with my experiment which I failed to mention in this report to Dr. Jenkins. My "controls" of the cholera spirillum upon pledgets of cotton between squares of blanket, which were kept at the laboratory, when placed in bouillon in the incubating oven, at the same time with those exposed in the disinfecting chamber at Hoffman's Island, also failed to grow. The spirillum had been destroyed by desiccation during the forty-eight hours that the pledgets of cotton were kept between squares of sterilized blanket. In view of this fact and of the experimental evidence heretofore recorded, the question arises as to whether the exactions made by bacteriologists and sanitarians with reference to the use of steam as a disinfecting agent are not

extravagant, and whether there is not some better way of disinfecting clothing, etc., in cholera.

After disinfection by steam in an apparatus such as is used at Hoffman's Island, the articles exposed in the chamber are quite wet, and some method of drying them before repacking in trunks, etc., is necessary for two reasons: 1. If by any chance cholera germs should escape destruction, they would be preserved for a longer time in the moist clothing than in the same articles if dry before they were placed in the disinfecting chamber. 2. The clothing would soon be injured if packed away wet.

As already stated, the thermal death-point of the cholera spirillum in a moist condition (bouillon culture), as determined by the writer, is 52° C. (125.6° F.), the time of exposure being ten minutes. It is with certainty destroyed in a very brief time by a temperature of 60° C. (140° F.). The demand, therefore, that it shall be subjected for half an hour or more to a temperature of 100° C., or to steam under pressure at a higher temperature, would certainly be extravagant if the only question related to the destruction of the spirillum by the disinfecting agent. It is something like asking for a sledge hammer for the purpose of killing a mosquito. Such an instrument would be certain death to the insect, but it seems a waste of energy to use it. We do not need such a tremendous blow, but we must be very sure that the blow is struck in the right place, otherwise the insect will escape uninjured, while serious damage may be done in the ineffectual effort to kill it.

In practical disinfection the question of the penetration of the objects to be disinfected by the disinfecting agent is quite as important as that relating to the germicidal power of this agent. And it has been shown by carefully conducted experiments that neither steam nor hot air readily penetrate bundles or piled-up heaps of clothing, blankets, etc. The free exposure of such articles in the disinfection chamber is therefore a matter of prime importance. As it is extremely desirable that the articles to be disinfected should come from the disinfecting chamber in a dry condition, and as the cholera spirillum is quickly destroyed by desiccation, the question at once arises, Why not use dry heat instead of steam in cholera dis-

infection? The use of dry heat as a disinfecting agent has generally been given up since Koch and Wolffhügel (1881) showed that the destruction of various micro-organisms tested by them requires a temperature of 120° to 128° C., and that the destruction of dry spores requires a temperature of 140° C., maintained for three hours.

But at the time these experiments were made the cholera spirillum had not been discovered, and the bacteria tested by Koch and Wolffhügel were not, like it, quickly destroyed by desiccation.

Desiring to ascertain the effect of dry heat upon the cholera spirillum, I requested Dr. Wilson to make some experiments in an ordinary incubating oven maintained at a temperature of 60° C. As a preliminary experiment, small pieces of sterilized blanket were moistened with a drop of a twenty-four-hours-old bouillon culture of the cholera spirillum. These were kept in sterilized Petri dishes for twenty-four hours so that they might be partly dry. They could not be kept much longer without killing the spirillum by desiccation. At the end of the time mentioned they were placed in the incubating oven (at 60° C.) and left for periods varying from three quarters of an hour to four hours. Upon transferring the little squares of blanket to sterile bouillon, it turned out that no development occurred from any one of them, while the controls gave a pure culture of the cholera spirillum.

Upon considering this result in connection with our other experiments heretofore reported, it was apparent that it was not worth while to carry the experiment any further. For, if the spirillum was still moist when placed in the incubating oven, a short exposure would certainly kill it, inasmuch as its thermal death-point, when in a moist condition, is several degrees below 60° C.; and if it were completely dry when placed in the incubating oven, its vitality would already have been destroyed by desiccation.

It is evident that, having an exact knowledge of the biological characters of this spirillum, we need no longer be controlled in making recommendations relating to its destruction by data relating to anthrax spores or pathogenic bacteria which resist desiccation—*e.g.*, the pus cocci, the typhoid bacillus, the diphtheria bacillus.

To the writer it appears that disinfection would be accomplished quite as effectually by the free exposure of woollen garments, blankets, etc., in a hot-air drying oven or chamber to a temperature of 80° to 100° C. for half an hour or more, being careful that no two articles were piled one upon another, for the penetrating power of dry heat is very slight. If the hot air oven were provided with an exhaust pump, the drying process could be effected more promptly. Or it might be so arranged that a current of hot dry air should pass over and through the articles to be disinfected.

In the absence of such a disinfecting chamber, and in favorable weather, such articles could be exposed to the sun and air upon clothes lines or spread out upon an asphalt pavement like that of Hoffman's Island, for example.—*New York Medical Journal*.

BRITISH PRECAUTIONS AGAINST CHOLERA.—The *British Medical Journal* for February 25th gives a brief account of a conference of port sanitary authorities held in London on the 17th ult., at which it was resolved :

1. That, inasmuch as special cholera precautions carried out by the port sanitary authorities are for the benefit of the whole population, those precautions, as far as they are special, should be carried out at the imperial expense.

2. That the medical inspection of all ships arriving at British ports from any port infected with cholera should be kept up by night as well as day as far as practicable, and that every British port should be provided with staff and appliances sufficient for this purpose.

3. That it is desirable in all cases that power of detention should be obtained of all vessels coming from infected ports.

4. That information as to infected ports should be forthwith issued by the local government board to the various port sanitary authorities.

5. That the detention of the medical officer of health on board a vessel until she had received a quarantine certificate was objectionable and should be abrogated.

6. That statutory power should be obtained to penalize false answers given by the masters of vessels to questions put by the authorities as to the health of the crew, and that the penalty should be increased.

7. That power should be obtained to require all vessels (including fishing vessels) having been in communication with infected or suspected ports to hoist a distinguishing signal on arrival.

8. That the quarantine or detention of vessels having no sickness on board, and so certified by the port medical officer, is unjustifiable.

9. That there should be an alteration of the cholera regulations enabling addresses of destination of the passengers and crews of vessels to be sent direct to medical officers of health.

10. That the crews of all vessels, while in infected or suspected ports, should be prevented from going ashore.

11. That the discharge of fresh-water ballast or fresh-water sand (whether as ballast or cargo) from an infected port into any British port should be prohibited.

A SICKLY SHIP.

REPORT ON U. S. S. "ALLIANCE."

By JOHN C. WISE, Surgeon, U. S. Navy.

FROM the standpoint of the obsolete ship of her class, the conditions for maintaining the general health on the *Alliance* are fairly good. If we consider the matter, however, from a more liberal aspect, such as what is due to those who pass so much of their life in confined spaces at sea, or what is due a great power to itself in so important a relation, these conditions are unquestionably very bad.

The cubic space per man is distributed as follows—viz.: Cabin, 1950 cubic feet; forecastle, 77 cubic feet; ward-room, 282 cubic feet; berth deck, 85 cubic feet. If the number of a ship's company is calculated upon the grate surface and bottom, it seems but rational that upon these factors the breathing space should be determined. There are no artificial means of renewing the air, and at times this has been vitiated by an escape of carbonic-acid gas from the fire-room to the berth deck.

Under the most favorable conditions, such as being in port with all inlets open, a fair condition of the air exists. The ports, however, are so low that in many roadsteads and harbors they must be closed. Under such circumstances, and at sea, especially in heavy weather when the hatches are hooded, the condition of the air is wholly unfit for respiration or to be slept in. To this cause has been attributable anæmia and many obstinate cases of boils. In such case the strong maintain their health with difficulty and the weak succumb to the diseases mentioned, or any other to which there is predisposition. Enactment requires 100 cubic feet of air space for the emigrant, and this is combined with means for the renewal of air. It is estimated that the poorest artisan class in London has 200 cubic feet of air space per man. The best authority states that the floor space should never be less than one half the air space.

Those who have been for any length of time connected with military or naval affairs cannot fail to recognize that occasions arise when, in the interests of the general welfare, all considerations of self must be subordinated or lost sight of ; yet it has ever been true of great commanders, both at sea and in the field, that they have done all in their power to maintain a good state of physical efficiency among their forces, and this not more from a proper solicitude than from a knowledge that no great results can be accomplished without it.

If that most influential of all factors in military or naval operations, a good physical condition of the force, is to be maintained, if it is desirable that our apprentices be not only good seamen and good gunners, but also strong men, it is high time to pay more consideration to their ordinary physical requirements and comforts. I am assured that the United States are behind the other powers in this matter.

The closets for the use of the ward-room have been placed in this ship on the quarter-deck. With improved fixtures and plumbing, such a location is admissible ; but in a primitive affair, with no water supply and the chute delivering above water, it is a reprehensible mistake to put them elsewhere than in the run or entrance of the ship. In this instance the chutes deliver within fourteen inches of the ward-room air ports.

The meal hours for the crew are unnecessarily crowded, all being between 8 A.M. and 4.30 P.M. There does not appear to be any valid reason why the time in which the meals occur should not be extended. In no condition or service is the conservative influence of custom so strong as in the Navy, and though a thing may be obviously vicious, it is often impossible to effect a change.

While no country provides so liberally as does ours for those who are unfit for service, I am not aware that any can show so large a list of comparatively young officers retired for physical disability. The causes for this are many. There might be mentioned the delicate physiques admitted to the Naval Academy and the various staff corps—physiques which are wholly unequal to the vicissitudes of naval life. One very unnecessary hardship is the standing regular watch in port. The English service has long since adopted the system of day's duty. The monotonous tramping of the deck through succeeding four-hour watches, when a ship rides quietly at anchor in port, places the watch officer *au niveau* with our street-car horse, and, as a matter of fact, often induces diseases in both instances by no means dissimilar.

A measure which would be an efficient one in the directing of sanitary improvement would be a radical change in the routine on Saturdays and Sundays. As matters are now the men have half Saturday and half Sunday; between cleaning up or getting ready for quarters, inspection, and often muster or Divine service, the forenoon of Sunday is ordinarily one of the most fatiguing of the week. Some time ago the Army abandoned Sunday inspections. They should be held on Saturday forenoon instead, and the crew allowed uninterrupted relaxation, except for necessary work, Saturday afternoon and Sunday. Especially would such a change be of service in the many trying climates, between which and the unending monotony of routine the general health is so often lowered.

The number of admissions for the year was 228; total number of sick days, 2020; venereal diseases caused 61 admissions and a loss of 886 sick days; climatic diseases caused 97 admissions and a loss of 635 sick days.

The first quarter of the year was passed in Japan. Small-pox prevailed as a mild epidemic, and a general vaccination was made.

While prostitution is licensed and inspected in the Yoshiwara, the innumerable tea-houses about the treaty ports abound with women of ill-fame who ply their trade without any restriction whatever. To mitigate the evils and save the loss of service from this cause is a matter of greatest importance to ships of war on this station. Besides a careful investigation of the liberty list, the measure which promises the best results is the restriction of night liberty. Men must be made to know that liberty is one of the most important means of maintaining health, and that excesses will be summarily dealt with. Strong human passion cannot be ignored, but it can be regulated and kept within bounds. That this view is not Utopian, I would cite our Coast Survey Service, where it is understood that physical disability arising from venereal disease is sufficient cause for discharge, and in consequence men are careful not to expose themselves to disease. To give a number of men liberty in a port like Yokohama, where the only resort is a saloon or a tea-house, and their servitors are prostitutes, is to invite their physical destruction.

While at Shanghai, China, night liberty was denied, with the best results. Another important factor is to be mentioned here, and that is the thorough and rigid inspection of all prostitutes. Through the courtesy of Dr. Blanc, I witnessed the inspection of fifty women of this class, at the Lock Hospital. The subject was placed in a reclining chair, and after examination of the external genitals, the vagina and os uteri were exposed by a bisected Sims duck bill—that is, the instrument divided in the middle, and each section mounted in a handle. With one in either hand the operator rapidly and fully exposed the parts. The women carried a *billet de santé*, upon which was the photograph of the owner. If healthy this was viséd; if not, the patient was retained for treatment. In all these examinations, at the time of my visit, no lesion was found. The solution of this most important matter can only be found by concerted action between the authorities on shore and on shipboard. If this be faithfully carried out we will have done all that lies in our power to ameliorate this great vice.

During the second quarter the ship was in Corea. While here a case of small-pox occurred, necessitating the organiza-

tion of a temporary hospital on Rose Island. Fairly good buildings were found ready, which were supplied with medicine, food, and fuel, and put in charge of an intelligent Bayman. Fortunately a second case did not occur.

The months of June, July, and September were spent at Shanghai, China, where the weather was hot, damp, and oppressive. There was but little difference in the thermometer day and night, and the air approached to saturation at all times. Between the intense heat and the foul air below, and the dangers of climatic fever and diarrhœa induced by sleeping on deck, the condition was one of discomfort. More favorable conditions for the development of malarial and epidemic disease can hardly be found than those existing on the marshy, fresh-water rivers of China, contiguous to the foul and over-populated native cities. Though several cases of cholera occurred among the shipping and prevailed on shore, the visitation of this disease in 1891 was comparatively light. It would seem that preventive measures looking to an amelioration or extermination of cholera, except in foreign communities, are not considered. Arising among the natives, the disease spreads to foreign settlements.

In Japan and China the close relation of the food and water-supply with the excreta not only illustrates the etiology of cholera, but, at the same time, shows what small prospect there is of its extermination. In Japan the soil is tilled in absolute contiguity with the wells, and is fertilized with liquefied human excreta. Dr. Jameson, a physician of Shanghai, cites an instance where, under a spigot, he saw the rice for the daily food being washed at the same time with a vessel just emptied of choleraic discharges.

During our stay there were 46 cases of diarrhœa with 343 sick days. There were 51 cases of climatic disease (exclusive of intestinal), principally febrile, with 292 sick days, more sickness than was experienced in the other nine months of the year. During the stay of this ship at Shanghai the utmost care was observed to prevent disease, and to it I attribute the fact that no case of cholera or severe illness occurred excepting one case of typhoid, one of dysentery, and one of sciatica, all of which were invalided to Yokohama. The commanding officer wisely suspended drills, restricted liberty, especially at

night, interdicted fruit, fish, and milk (except when boiled for the sick); in fact, every precaution possible was taken to keep the men equal to the important service on which they were, coupled with the possibility of landing at any time to protect the foreign settlement.

The admiral ordered the ship to Chefoo for the month of August; the recuperation was rapid. This city lies in Northern China, in the province of Shantung, and on the Yellow Sea. As a summer resort it has great advantages; located on an inclined plane, it rises gradually from a long, sandy beach to a fine semicircular range of hills. The northern exposure insures a cool air which, I am informed from the observations of an officer of Her Majesty's navy, to be exceptionally dry. Its effects in restoring those debilitated by the unhealthy climates to the southward are marvellous; this fact, coupled with its ease of access and proximity to Southern China and Japan, render it a favorable resort for men-of-war wishing to recuperate the general health.

The last quarter of the year was passed in Northern Corea and an exploration of the unopened port of Ping Yang, with its surroundings. The weather was fine, and this was the healthiest quarter of the year.—*Abstract of Report of Bureau of Medicine and Surgery, U. S. Navy, 1892.*

SAFETY OF STEAMBOAT TRAVEL.—The efficiency of the existing steamboat inspection laws is well illustrated in the following extract from the recent report of the inspector-general:

“The present steamboat laws went into operation February 28th, 1871; and, therefore, with the beginning of the present year, they have stood the test of twenty-one years.

“During that time the number of steamers inspected has increased from 3102 inspected in 1870, under the law of 1852, with a total tonnage for that year of 942,272 gross tons, to 7661 steamers inspected during the fiscal year ending June 30th, 1892, with a total tonnage of 2,000,553.37 gross tons.

“During the nineteen years of the operation of the law of 1852 there were 1504 disasters to steam-vessels, with a loss of 9320 lives, or an average per annum of 490 lives lost caused by such disasters.

“Whereas, notwithstanding the great increase in the number of vessels since 1870—over 100 per cent—there have been but 729 disasters to steam-vessels, with a loss of but 5057 lives, or an average of 240 per annum; the number of passengers carried per annum having increased from 122,589,130 carried in 1870 to not less than 650,000,000 carried in 1892. The average loss of life under the law of 1852, as obtained by dividing the number of passengers carried in 1870 by the average (490) number of lives lost for those years, was one person to every 250,181 passengers carried; while under the operation of the law of 1871 an average obtained by dividing the number of passengers carried in 1892 by the average (240) number of lives lost in the years covered by the latter law gives only one life lost in each 2,708,333 passengers carried, or a reduction in the number of lives lost of nearly 11 to 1 in proportion to the number of passengers carried.

“These results show that under the present steamboat laws, travel by steamboat is safer than by railroad or any other vehicular mode of travel—in fact, safer than is pedestrian travel in large cities.

“The number of railway passengers carried last year was 530,000,000, of whom 293 were killed.”

CLOTHES.*

By HERBERT MAXWELL.

THE further we travel from the origin of our species the less concern does male humanity show to enhance what share of beauty it may lay claim to, or to screen the ugliness it is generally heir to, by grace of garments. Among civilized and well-to-do men, gala costume has no key-note now but respectability; at weddings as at funerals, at garden-parties as in Parliament, costume is attuned to harmonize with the hurtful cylinder of sable which the supineness of our great-grandfathers allowed the hatters to impose on them as a head-dress, and a hundred hopeless years, have but served to bind more

* Abstract from *Blackwood's Magazine*.

tightly on our aching brows. If the chimney-pot hat were comfortable wear—were it sun-proof or rain-proof, or easily carried when not in use—our allegiance to it might be monotonous, but at least it would be intelligible. But, in plain sooth, it is intolerable in sunshine ; it is so sensitive of rain-drops that an umbrella must be carried for its special shelter ; and, when we travel, it is as difficult to dispose of as a murdered corpse. It cannot be concealed ; the accursed thing will fit in with no other portion of our raiment, and must be provided with a special case of grotesque and impracticable shape. In wear or out of wear, we cannot forget its existence nor neglect to make provision for its protection. Cephalalgic humanity has tried every means to be quit of it, but in vain. The creature has not even a serious name, for no one except the fiend who frames it knows it as a silk hat ; school-boys, with the contempt born of familiarity, call it a “ buster ” or a “ topper ; ” soldiers, scornfully, a “ stove-pipe ; ” civilians, realistically, a “ chimney-pot.” In vain has bountiful nature provided straw, and human ingenuity fashioned felt ; two more perfect substances for head-covering could not have been devised ; but, perversely, littering our horses with the one, and roofing our barns with the other, we thrust our thinking organs into unyielding towers of pasteboard. In a simpler age we should have made a god of It—prayed to It, sung to It, bowed to It, propitiated It ; but, having adopted monotheism, we are outwardly consistent, and are content to insist on taking it to church with us. The first inhabitant of Mars who visits the earth, and publishes a volume of travels on his return, will probably describe how the possession of a chimney-pot hat is held to be essential to salvation.

There is, at present, no glimmer of hope of escape from it. Even ridicule, most potent of solvents, runs from it like rain from a duck’s back, leaving it intact in all its pompous, gloomy, perpendicular absurdity. Nay, the very derision with which it ought to be treated, is reserved for those who attempt to resist its tyranny. Witness the fate of Mr. Keir Hardie (with whom in this, if in nothing else, we are in complete sympathy) ; did he not take his seat in the new House of Commons wearing on his haughty brow an amorphous arrangement in toast-colored tweed ! which might, indeed,

have been designed on more statesmanlike lines, and conceived to harmonize more closely with the Senate than with the rat-pit, but at all events indicated a brave man's effort to set at naught the frowns of fashion. But, alas for manly independence ! all the recognition he obtained was a supercilious stare from other members, and a rebuke from the speaker for venturing to the table of the House without uncovering. It was a gallant attempt, but it has failed ; and we entertain the melancholy conviction that if Mr. Keir Hardie is to perform good service to his constituents, it must be by means of what nature has put *in* his head, and not what he chooses to place *on* it.

Teufelsdröckh, by bracketing tailoring with law-making, has landed us straight in the House of Commons, which, in the matter of dress, is remarkably, even monotonously, conservative. If it were possible to repeople the benches with those who occupied them thirty years ago, it would be found that the fashions of 1862 were almost identical with those which prevail now. Younger men might detect minute differences of detail in the cut of trousers, the height of hats, or the fold of neck-cloths, but the general effect would be precisely the same. Mr. Denison was speaker then, and there is a legend that he was the last occupant of the chair who took on himself to animadvert officially on the cut of a member's coat. It is said that he once gently but firmly remonstrated with a certain Scottish baronet for appearing in a garment known, we believe, to the careless and worldly as a "shaver," but charged for in tailors' bills as a "lounging jacket." Now, if that be true history, it marks a change which might otherwise escape notice, interesting as denoting a "mysterious operation of the mind." For in this year of grace 1892, in the present Parliament, the "shaver" has received its apotheosis.

In this wise. The first duty of a new House of Commons is to elect a speaker, and the progress of the speaker-elect from the position of a private member to that of the first commoner in England is marked, according to immemorial usage, by nice gradations of attire. On the first day he appears in mufti—in the morning dress of a private gentleman—and takes his seat like any ordinary mortal. Speeches are delivered moving him into the chair, to which he replies with

suitable modesty, tinged with menace to evil-doers. The House then adjourns; when it reassembles next day the speaker takes the chair, not in plain clothes, nor yet in full costume, but in an intermediate, fledgling state of small-clothes, dress-coat, and bob-wig. The faithful Commons are summoned to the Lords, whither they proceed, headed by the speaker, to receive the royal assent to his election. The custom of late years—deeply, we think, to be regretted—has been for this to be delivered not by the monarch in person, but by a royal commission, consisting of the lord chancellor on the Woolsack, supported by three other peers. It is the opportunity for a remarkable sartorial display. The commission sits motionless in a row, robed in scarlet and ermine, balancing three-cornered cocked-hats on their noble heads, and looking, for all the world, like a show of waxworks. The speaker's election having been approved, he returns to the other House, passes to his private rooms, and presently re-issues in all the panoply of full-bottomed wig and silk robe. The operation is complete, and its various stages have each been signalized by a change in costume. But on this occasion it was in the first stage of all that the portent was manifested; when the speaker-elect sat among his fellow-commoners. Time will show what was foreshadowed by the phenomenon; it may have presaged the shortness of the present Parliament, or the looseness of its manners; but none will be found to maintain that, in a ceremony rigidly accentuated by prescribed changes of costume, it was a meaningless accident that *the speaker-elect wore a "shaver."*

Now it is all very well for Mr. Peel to play such pranks; he is gifted with a handsome head and lean and commanding figure, but fancy recoils from speculating on the effect, supposing the choice of the House to have fallen upon one of the fat kind with which the pastures of Westminster abound. We name no names; we point no invidious finger; but whether of Lilliputian proportions or on the scale of Falstaff, there are plenty of members whom it would have been simply impossible to promote to honor thus scantily draped.

Benvenuto Cellini describes in his autobiography how, having been summoned before the Florentine Council of Eight to answer for his part in a brawl, he was unfavorably received

because he chose to appear only in a short cloak, whereas his adversaries wore mantles and robes. It was considered the mark of a disreputable character if any one, except a soldier, went about the streets of Florence in daylight unless in a mantle of becoming length ; but that prejudice we must consider finally put an end to by the sanction given in his own person by the speaker to free-and-easy costume.

Before leaving the House of Commons, we must return once more to the irrepressible hat ; for it plays a leading part in that assembly. Gentlemen to whom it would never occur to wear hats in their own houses, sit glued to the benches for hours, closely covered. It may be said that they keep their hats on their heads because there is nowhere else to put them. But why bring them into the House at all ? Although the Fatherland has not yet been persuaded to remunerate its representatives, it has, at least, been thoughtful to provide each of them with a peg, whereon hat and cloak may be suspended as naturally as in one's own hall. If it were the custom to convey umbrellas and clouded canes into the Chamber, one might discern and sympathize with the motive, because of the known altruism which inspires some people in regard to these movables ; but one must be in the last stages of kleptomania before he is tempted to appropriate his colleague's headgear, especially where the average quality of the article is so far below par.

There is indeed a certain symbolism, a mute intelligence in the Parliamentary hat. For instance, if you should notice that an honorable member, whom you are accustomed to see going about as closely and constantly hatted as the artists represent Napoleon to have been in crossing the Alps, suddenly appears bareheaded in the lobbies, him you may know to have been appointed a whip of the party to which he belongs. A hatted whip would be an apparition as unfamiliar as an ordinary member in shirt-sleeves.

Again, the hat derives constitutional importance from being the only article of attire referred to in the standing orders. Members are directed to uncover when they rise to address the House or to move from their places ; but nobody is obliged to wear a hat unless he has a fancy to do so, and

nobody requires to have command of one except in the presence of one or two contingencies. The first is when, at a certain stage of private business, the royal assent has to be intimated by a privy councillor, who does so by raising his hat. The other is of a still more exceptional kind, when, some irregularity having taken place or a point of order arisen, a member desires to address the chair in the interval between a division being called and the tellers appointed. If he speaks at that time, it is prescribed that he must do so without rising from his seat and with his hat on. It was one of the comical moments during the '80 Parliament, when Mr. Gladstone, having to take part in a discussion which arose at this precise moment, and having left his hat in his own room, borrowed one from a colleague on the Treasury bench. It was many sizes too small for him, and it required nice carriage on the part of the prime minister to poise it on his head. Mysterious punctilio! Yet how fondly the House clings to it! It will suffer the very existence of the other House to be menaced; with a light heart it will tamper with the very taproot of the Constitution; but no one has ever been heard to utter a disrespectful word against the awful dignity of this point in its own ritual. It is far from our purpose to do so now. We know not in what sacred episode of our history this custom may have taken its rise, and we are disposed to treat it with the unquestioning reverence due to the inscrutable.

But seeing how exceptional is the contingency above described, and seeing how greatly it would contribute to the comfort of members, without, surely, detracting from their picturesque aspect, if they took to leaving their hats on the pegs provided in the cloak-room, might not provision be made for its occurrence by hanging a public hat in some place of easy access within the House, say, behind the speaker's chair? or let it even be laid on the table with the mace at the commencement of each sitting. It is strange that this was not thought of in the good days of sinecures. The parliamentary groom of the hat might have defended his privilege and salary with far more reason than the hereditary grand falconer or the comptroller of the pipe.

And now let us dismiss the hat from consideration (would

that it could be as easily dismissed from wear !) with a passing speculation as to the tenacity with which, in its present form, it has fixed itself in our scheme of costume.

The same jealousy of superior physical advantage has brought about many of our ugliest fashions.* Sculptors and painters sigh with vain *weltschmerz* for the small-clothes of eighteenth-century Macaronis, and the trunk-hose of the Elizabethans, but so long as some men continue to be born with spindle or crooked shanks and doubtful ankles, so long will well-turned limbs be doomed to the obscurity of trousers. The excuse that trousers are more convenient and comfortable than breeches and hose is groundless and insincere. Wherein lies the convenience and comfort of a chimney-pot hat? Yet we have clung to it for a hundred years. The real reason is that, inasmuch as indifferent legs are in the majority, it has been resolved that all alike shall be entombed in shapeless tubes of cloth.

It was on the eighth anniversary of Waterloo that the British infantry first appeared in trousers—an order from the Horse Guards in 1823 having directed that blue-gray cloth trousers and half-boots were to be worn instead of breeches, leggings, and shoes. The boots were certainly an improvement on shoes, but it is equally certain that marching in much harder work in trousers than in breeches. Herein the cause of artistic clothing received a serious blow; for there are always plenty of young men affecting a military model, who, when the army was forbidden to wear breeches, were not slow to follow that example.

See in what a dilemma our poor portrait-painters find themselves. Our clothes are now so ugly that they have to resort to all sorts of device to palliate their evil cut, and play pranks with light and shade to relieve their tiresome colors. Perhaps the most successful treatment is that adopted by Mr. Whistler in his portrait of Carlyle, in which the canvas is kept to a low and limited tone—a kind of gloaming, with no sparkle of bright light or vivid color—and the cloaked figure looms like a ghost-like reflection of the departed sage. It is a masterly piece of work, yet a gallery filled with such shadows of humanity would be oppressive; one would long for

the flashing glance, the gleaming metal, the flush of rich color in which the Venetian masters rejoiced.

As a rule, when a man is to be painted, his clothes must be dealt with too. Attempts are sometimes made, rarely with success, to avoid this necessity. The late Mr. Johnston of Straiton, who collected a large gallery of pictures, stood for his portrait as St. Sebastian, in the nude, with arrows sticking in various tender parts of his body. One clear objection to that device is that, inasmuch as English gentlemen are not in the practice of appearing in public without their clothes, they are not easily recognized in that unfamiliar state. To be satisfactory, a portrait ought to represent the subject thereof as he is best known. Moreover, most of us would shrink from exposing our acalypt forms to be dusted daily by the diligence of our own housemaids. There would be something uncomfortable if the head of a sedate household had to take his place, clad in his native home-spun or ceremonial broadcloth, to read family prayers, under a picture showing him as he might have been surprised in the act of leaving his tub an hour before. The fact is, few artists in this climate succeed in painting the nude; it almost invariably gives an impression of the undressed. It is most difficult to avoid this effect, for to paint the human body faithfully some one must undress and sit to the artist. The skin usually clothed upon is of a different color and texture from that on which the sun shines, the wind blows, and the rain beats; a man's back and arms are as different from his neck and hands as a blanched stalk of celery is from the leaves. The painter has to supply from his imagination the warm tones to which the upper surfaces of shoulders and limbs would be tanned by habitual exposure, and usually fails to do so. Etty's groups of undraped figures convey an unpleasant suggestion of live bait; and, leaving out of account the beautiful confectionery prepared each year by the president of the Royal Academy, and skilful abstractions like Mr. Hacker's "*Syrinx*" in the Exhibition of last summer, there has been in the annual show at Burlington House only one picture during the last three or four years which dwells in the memory as a thoroughly satisfactory rendering of the nude figure, yielding at once a poetic ideal and conscious interpretation of warm, palpitating flesh

and blood. This was Miss Henrietta Rae's "La Cigale," in the Exhibition of 1891. On the whole, therefore, for these and other reasons too obvious to specify, it cannot be urged that the British statesman, capitalist, squire, author, or other notability, should sit for his portrait otherwise than fully clothed.

Sculptors enjoy more freedom in this respect than painters, the absence of color helping to conceal the difference between what is nude and what is merely naked. But even they are heavily handicapped in their art by the brutality of modern garb. Consider the *sic sedebat* statue of Francis Bacon by Sir Thomas Meautys in the church of St. Michael at St. Abans. The sculptor has rendered the great philosopher's "full portraiture in the posture of studying," reclining in his elbow-chair, hatted and cloaked; every detail of dress is given down to the rosettes covering the shoe-ties, yet everything pleases; all harmonizes with the feeling of restful contemplation. The hand that were to undertake as faithful a likeness of Darwin would scarcely prevail to carve so beautiful a memorial. The very boots would be heard to creak, "See how vulgar the human foot may be made to appear!"

Whence comes it that we men have lost all sense of grace in our habiliments? Of course it is otherwise with women—some reflections upon their clothing may be entered on presently. How comes it that, to quote a high authority, the surest test of a well-dressed man is that, after parting with him, one should be unable to remember the color or material of any particular article of his raiment? Penelope took just pride in weaving for Ulysses a purple cloak with a hunting scene in gold thread. Ought one to be ashamed of the pleasure derived from reading the luscious details of the clothes supplied to Jehan le Bon, king of France, to solace him withal during his captivity at the Savoy in London; or may one share in imagination his agreeable feelings in putting on for the first time, as he did on Easter day, 1358, a suit of marbled violet velvet, trimmed with miniver, or again at Whitsunday in the same year when he wore a new doublet of rosy scarlet, lined with blue taffeta? Has Goldsmith forfeited any share of our esteem because of the delight he expressed

in his bloom-colored coat? The "Diary" of Samuel Pepys would not be half so readable if it wanted the affectionate mention of the writer's "close-bodied, light-colored cloth coat, with a gold edging in each seam, that was the lace of my wife's best petticoat that she had when I married her;" his "black cloth suit, with white lynyngs under all, as the fashion is to wear, to appear under the breeches;" his "velvet coat and cap, the first that ever I had;" or his "new colored silk suit, and coat trimmed with gold buttons, and gold broad lace round my hands, very rich and fine." It does not, perhaps, much impress the reader with the greatness of the diarist's mind to be told how, when he went to church, "I found that my coming in a perriwigg did not prove so strange as I was afraid it would, for I thought that all the church would presently have cast their eyes all upon me;" and he brings into relief his prudence at the expense of his loyalty when he writes, "Hearing that the queene grows worse again, I sent to stop the making of my velvet cloak, till I see whether she lives or dies." But these details add to the lifelike interest of the journal, whereas description of nineteenth-century tailoring would be simply intolerable.

We smile in our superior way at Samuel Pepys's little vanities, and affect to be as unconscious as the lilies of the field what we are arrayed in; but it is a shallow imposture. In reality, we take as much thought and pains how to be inconspicuous and as little different from our fellows as, in chivalrous times, knights did to make their coat-armor distinctive. Most men like to wear well-cut clothes; no one cares to go about in things that look as if they had been made by a carpenter. Trifling differences, which can be indulged without attracting inconvenient attention, are very dearly prized.

One of the most guileless and cultivated men I have ever known betrayed some of this pardonable affectation. He lived almost constantly on his estate in the north, and certainly was far from extravagant in the matter of tailors' bills. He declared that during a quarter of a century he had only bought a single pair of white kid gloves, one of which he wore at his own, the other at his daughter's wedding. But he was the reverse of untidy in his person, and invariably dressed for dinner, even when quite alone, and always buttoned his dress-

coat across his chest. During one of his rare visits to London, Stultz, who was then at the top of his profession, and, for aught I know, may be so still, was called on to make him a new dress-coat, which was duly executed, and the garment sent home. A few days later my old friend reappeared at Stultz's, bringing his dress-coat.

"Look here," he said, "this coat is not the thing at all; it must have been made for some other man."

"Indeed, Sir William," replied Mr. Stultz, "that is surprising; we have always succeeded satisfactorily with your orders. Some slight alteration in the figure, perhaps. We don't grow any younger, Sir William, eh! Let us try it on." Which being done, "It appears a perfect fit, Sir William," continued the artist, standing back to admire his own handiwork; "your figure does not seem to have changed in the least."

"But it won't button, man," rejoined the customer, tugging at the lapels.

"No, Sir William; it is not intended to do so. Dress-coats are invariably worn open."

"But I like mine to button across."

"Most unusual, Sir William," sighed Mr. Stultz; "in fact, I may say it is *never* done."

"But I tell you I always wear my coat buttoned in the evening, and I don't care two straws what other people do."

"Oh, Sir William! if it is a CHARACTERISTIC, that is another matter"—and the cutter being sent for, the necessary alterations were planned on the instant.

The name of Stultz recalls an incident in my own early days, illustrating how, in spite of apparent disregard, the slightest departure from the prescribed cut brings ridicule upon the innovator. Every one who has been at Eton has realized the gravity of "going into tails." The round jacket, falling collar, and black tie are discarded for a cut-away coat, stick-ups, and a white choker. Well, the day had arrived when I was to go into tails, and repairing to Mr. Stultz, I desired to be supplied with a coat.

"What sort of a coat, sir?" inquired the dignified gentleman in the front room.

"Oh, one with tails," I said nonchalantly.

"A frock-coat, I presume, sir."

"Yes," I replied, profoundly ignorant of the terms of sartorial art; and a frock-coat was made and duly sent down to my tutor's. Oh, the shock on unpacking it to find it was not the correct article! Oh, the heartless laughter of the other fellows and the merciless chaff that had to be endured! Oh, the sickness of hope deferred till the right vestment could be made! So wide is the chasm in etiquette between a coat with one row of buttons and another with two.

In like degree, as graceful shapes have ceased to be sought for in designing men's garments, beauty of color has also been rejected, and a preference shown for black, white, or neutral tints. In no article of clothing is this more rigidly prescribed than in leg-covering; and this is the more remarkable because the word "breeches" is supposed to be derived through the Roman form *braccæ*, from the Celtic *breac*, which means variegated, of many colors. This marked preference for sombre hues arises, in part, from the same desire to neutralize the effect of physical superiority which has spoiled the shape of modern clothes.

It is part of the same plan which, as is well known to ethnographers, takes the form of tooth-breaking among primitive people in different parts of the world. Just as an influential Batoka of East Africa, or a Penong of Burmah, whose teeth happened to be defective, feels happier when he has persuaded other young men of his tribe to deface their faultless ivory; so a European grandee, of bilious or dyspeptic habit, would look with prejudice on one whose clear complexion and ruddy cheeks gained brilliancy by contrast with pale-blue satin or carnation silk; he might at least have the sense to eschew such combinations in his own attire, and, by showing preference for sombre tints, tend, in virtue of his position and influence, to set the fashion flowing that way; for, as Quintilian observes, *quidquid principes faciunt, præcipere videntur*. But another motive probably contributed to the discouragement of bright hues—namely, the difficulty of making up one's mind amid competing dyes.

Montaigne declares he would not be bothered about it, and never wore anything except black or white. He lived in an age of polychrome clothing (*François accoustumez à nous bigar-*

rer, as he observes), and a mind so full of activity as his might well be impatient of the problem of color arising every time he ordered a suit of clothes. But he can hardly have foreseen the lamentable effect upon the aspect of society brought about by universal compliance with his practice. Viewed at a little distance, a crowd of men, whether on a race-course, on the streets, in an assembly, or elsewhere, looks as cheerful as a flock of rooks without their gloss, or a meeting of chimney-sweeps without their usefulness. And there are plenty of vacant minds which might be profitably applied to a revival of beauty in dress. We prate much more about beauty now than men did when there was far more beauty about. Sir Francis Dashwood used to say that Lord Shrewsbury's Providence was an old, angry man in a blue cloak ; future students of the history of the nineteenth century will picture to themselves the notables of that age as animated pillars of soot.

It is difficult to decide whether the gradual suppression of magnificence in male attire and the development of feminine finery among civilized races, is more interesting to the zoologist, the anthropologist, or the moral philosopher.

To the first of these it is a perplexing departure from the scheme of nature, where it is a rule that any marked difference between the sexes confers greater splendor upon the male. The peacock and peahen, the lion and lioness, the stag and the hind, are common examples of a principle which, among the higher animals, finds its only exception among certain falcons.

The anthropologist will find some analogy in the practice of the Fiji islanders, whose women are decoratively tattooed, but not the men. On the other hand, among a neighboring people, the Tongans, it is the men who are tattooed and not the women. Moreover, the Fijians, who consider themselves much superior to the Tongans, have invented a legend to account for this anomaly. It is said that long ago a messenger was sent from Tonga to Fiji to obtain information about the correct fashions among people of social standing. Swinging merrily along on his return journey, he kept repeating aloud the precept he had committed to memory, so as to be sure and deliver his message correctly. "Tattoo the women but not the men ; tattoo the women but not the men ;

tattoo the — DAMN !” — he had struck his bare shin against a stump in the grass. After some minutes’ halt to rub the bruised limb, he resumed the route, but the rhythm of his chant was broken, for by the time he arrived at Tonga, he had it, “Tattoo the men, but not the women.” And ever since the Tongese braves have been beautifully ornamented ; but the ladies are allowed to remain as nature planned them. * As for our moral philosopher, his opinion does not count for much in matters of dress, or its substitute—tattooing. He probably wears a shocking bad hat, with marks of ancient raindrops, which, like those on the Corncockle flags in the New Red Sandstone, having once been allowed to dry, are practically indelible. His umbrella is robust enough to shelter three abreast, but, honest man, he had left it in the stand at the British Museum, or his mind was too busy with a complicated train of thought to allow him to put it up at the right moment. His theory of feminine dress finds no favor with the wife of his bosom or his daughters ; they bewilder him by the mutability of their fashions, for no sooner has he found a parallel in dress-improvers to the worship of Venus Callipyge, than, lo ! they have melted away, and an unaccountable protuberance appears somewhere else. He prepares unanswerable arguments against the cruelty of adorning hats with feathers and the bodies of little birds, but, before he can produce them, ribbons and flowers are all the mode.

Perhaps women devote themselves to the details of millinery all the more because we men have allotted to them more than a fair share of the dull things of this life. We have left them comparatively little on which they can occupy themselves agreeably. They have books, of course, but books only serve as a whet to active employment. The daily round of household duties, the weekly discharge of bills, the tedious routine of morning calls, visitation of the sick—everything, in short, that bores a man is cast upon his wife ; no wonder if her thoughts attach themselves to matters of toilet, which we despise as being beneath our dignity. And thereby we, who are the oppressors, derive unmerited advantage, for we are free to feast our eyes on the pretty things in which the fair sex go pranked.

Not that our enjoyment is without alloy. Feminine cos-

tume is subject to the most sudden and excruciating variations. No sooner have we learned to delight in a simple, becoming fashion, than instantly the Evil One, whose dwelling-place is in Paris, contrives some mock deformity, and every woman of spirit hastens to adopt it. There is nothing in the human frame more pleasing to the eye than the sweet lines of a woman's shoulder ; yet this is precisely the part which, during the last year or two, the malice of *modistes* has concealed with every ingenuity of structure. Vertical humps have been placed there, contrived so as to make the chest look as narrow, the shoulders as high, and the neck as short as possible.

Now, is it impossible to test the strength of this evil spell ? Those who have analyzed and intelligently contemplated beauty, know how humbling it is to have to confess that women who do not conform in some degree to the fashion, have a self-conscious, and therefore ridiculous, appearance. Yet there is nothing more certain than this, that all this restless craving for change is inspired and sustained by those whose interest it is to supply new clothes. In classical times, the part of their dress on which women spent most money and care was the *peplum* or shawl. In this there was great variety ; new and elaborate designs were continually being imported from Tyre and Sidon, and their artistic merit was so great that the poets delighted in describing them. A collection of shawls often formed an important part of a citizen's wealth, or of the treasures of a temple. Imagine a nineteenth-century paterfamilias storing up the worn clothes of his womankind ! How pleasing it would be to exhume a crinoline of thirty years ago, or a ponderous bonnet, decked with plumes, of the early Victorian age ! The zone—ζώνη παρθενική—has a whole anthology of its own in the Greek and Latin writers ; but even the graceful fancy of Mr. Andrew Lang is not equal to weaving tender sentiment into anything so fugitive as the waistbands of our daughters. Homer's description of Helen's trailing *peplum* was full of pleasing allusion for people of fashion many centuries after it was written, for the mode was seen to be good, and people had the sense to stick to it ; but who would be equal to the task of framing in living verse the costume worn by a fair one at a modern dinner or garden

party? Even Byron shrank instinctively from the attempt, and nearly three hundred and fifty stanzas of "Don Juan" must be perused before any detailed allusion is made to the dress of one of the many fair women who bear parts in that romance. And then it is the Greek Haidée whose attire is touched upon, because it, too, is Greek.* Ah, the pity of it! Paris fashions have killed national costume, and the modes endure not so many days as they used to last years.

The serious part of this is, that the immense cost of women's dress leaves nothing of value behind it. Sables are positively the only purchase that can be looked on as a safe investment. The most thoughtful selection and design of other materials is sure to be soon stultified by the imperious caprice of Monsieur Worth. By no means can the sorrowful folly of this thralldom be brought home to one more forcibly than by a visit to the cases in the British Museum, containing the little funebral figures from the tombs of Tanagra. The exquisite grace of raiment, the delicate hair-dressing, varied to suit each different cast of features, the care with which beauty of form is accentuated instead of being wrapped up or distorted—all convince one of the cruelty of the modern system which robs our eyes of legitimate delight. How would it be with us were it the custom to lay in the tombs of our departed ones little statuettes, representing them in their best clothes? Should we not shrink from the criticism of posterity? It must be confessed that women would stand this ordeal better than men; still, a modern ball-dress, with corsage cutting horizontally across the bust, is a terrible violation of the natural lines of the figure, especially when, by means of long stays, the cincture is thrust away down where no sculptor would dream of placing it. In the name of common honesty, whence comes the mock delicacy of forbidding the form of a woman's legs to be seen? Are they more suggestive of unlawful thoughts than arms and shoulders? Shall Diana be accounted less than chaste because her statue in the Vatican shows her with tunic girt well above her bare knees? The Spartan virgins were not the less reverently regarded because

* Don Juan, canto ii., 121.

the graceful *chiton*, being open on one side to allow freedom of movement, flew open as they walked, and got them the name of *φαινομηρίδες*. It is utterly unjust that, because some women have indifferent legs, all should be compelled to wear long skirts on all occasions. If it is desired to see which is most becoming, compare an Ayrshire dairymaid in workaday attire of short pleated petticoat and the linen jacket called a bed-gown, snooded hair, woollen hose, and serviceable shoes, with the same girl figged out on Sunday with a fly-away bonnet on her head, a travesty of Paris fashions on her back, trailing skirts, and high-heeled Balmorals. Of the two, the first is not only the more pleasing, but infinitely the more modest in appearance.

Marie Bashkirtseff, in composing the most self-conscious journal ever penned, was in the habit of subjecting her own actions and those of others to frank analysis. She came to the conclusion that the sentiment of physical modesty was one arising from a sense of one's own imperfection; that if one could be quite conscious of perfect proportion and beauty, there would cease to be any motive or impulse to conceal the body and limbs. Perhaps it is as well that misgivings on this point are pretty universal; but, seeing that it is fixed by an utterly arbitrary rule what portions of the body may be displayed and what may be concealed, it may be permitted to enter a protest against the tyranny which forbids one young lady to show her ankles because another one finds it expedient to conceal hers.

One longs for redemption from the barbarities of feminine fashions. One sighs to exchange the long, wasp-like waists and tight-lacing for the simple, easy gowns of our grandmothers, to replace the girdle where the Grecian zone was bound, just clear of the ribs. But one has an uneasy foreboding that the simplicity of classical toilets might be interfered with by the diabolical devices of milliners. At the close of last century, before small waists came, in the inscrutable movement of the female mind, to be counted a beauty, there was an atrocious fashion of wearing pads below the girdle, so that the drapery should fall in unbroken sweep from the bosom to the ground. Many were the shafts aimed by

ribald writers against this extraordinary device ; many the unjust imputations to which it gave rise :

“ Some say nature’s rights ’tis invading
This sham swelling garb to put on :
For how, with these false bills of lading,
Can ships by their rigging be known ? ”

It passed away, and the last ninety years have seen the beginning and end of many other modes more unsightly and not less absurd. Is it hoping too much that, seeing how fast the fashions fly, all the ludicrous, hideous, and hurtful ones will, in the fulness of time, have been discarded, and a return be made to the only faultless model the world has ever seen ? It was designed by the race whose genius led them by the straight avenue to consummate art, in dim-sighted attempts to reach which goal we have floundered into the ditches on either side. There is a modest little volume by Mr. Moyr Smith, “ Ancient Greek Female Costume ” (London, 1882), which well illustrates what wearing apparel might and ought to be. The *chiton* or tunic in various forms, whether made to fasten with clasps, as in the Doric fashion, or without them in the Ionic (which the women of Athens were made to adopt after they had killed with their buckles the only one of their countrymen who returned from the expedition to Ægina) ; the flowing *peplum* for indoors or fine weather, to be exchanged for the woollen *chlamys* or *himation* for out-door wear ; the broided girdle ; the *cothurnus* or laced boot, leaving the toes exposed, for rough walking or wet weather, and sandals of various patterns for town or house wear—these were the chief items in the one perfect costume that women have ever been content to wear ; the only one that should guide us in much-needed dress reform.

ROYAL APPAREL.—The surgeon of a naval vessel, whose officers were once dined by the King of Dahomey, relates that His Majesty attended the dinner looking very impressive in a plug hat and a red (British) military coat reversed—buttoned up the back—and that the chief delicacy served was stewed blue monkey. A visit from the Dahomeyan ruler to Chicago during the Exhibition is among the possibilities.

THE MINERAL SPRINGS OF GEORGIA.

By A. N. BELL, A.M., M.D.

FOR convenience of treatment in following up this subject, the same division will be pursued in the description of the mineral springs and their vicinage as that adopted by the writer with regard to climate in his book on "Climatology," etc., before referred to (February number), as follows :

(1) The Atlantic States, east of the Appalachian system, or Alleghany Mountains ; (2) the Mississippi Basin, between the Alleghanies and the Rocky Mountains ; (3) the Western Highlands, between the Rocky Mountains and the Pacific ; and (4) the Pacific Slope.

1. THE MINERAL SPRINGS OF THE ATLANTIC STATES.

GEORGIA.—The Atlantic Slope begins in an abrupt, terrace-like rise of about seventy feet, thirty to forty miles inland from the sea-coast of Georgia. This is followed by a succession of similar abrupt elevations at various distances apart until about one hundred and sixty miles from the coast, where the elevation has attained five hundred to six hundred feet. And it is here that the foothills of the Alleghany Mountains have their origin, in a series of ascending ridges and outcropping spurs, which in the northern and northwestern part of the State attain altitudes of twenty-five hundred feet to five thousand feet above the level of the sea.

Savannah, the chief city of Georgia, is situated on the south bank of the river of the same name, on a bold bluff forty feet above sea level, extending along the river bank for nearly two miles and backward, widening as it recedes, about seven miles, the total area of the city being about four square miles. In its general plan Savannah is conceded to be one of the handsomest of American cities. Its streets are broad and beautifully shaded. They cross each other at right angles, and at the principal crossings small public parks intervene, laid out in walks, and planted with evergreen and ornamental trees and flowers. The residences also are mostly surrounded by

flower gardens, more or less in bloom throughout the year. Being in latitude $32^{\circ} 5'$ north, and sufficiently near to be within the influence of the Gulf Stream, the climate of Savannah approaches the mildness common to a tropical winter without the intense summer heat common to many places north of it.

The mean temperature is about the same as that of Bermuda, 66° Fahr.

The present population is about forty-five thousand, characterized by a degree of enterprise and thriftiness scarcely excelled by any city in the Southern States. The hotel accommodations are unsurpassed.

Augusta is also a handsomely laid-out city of upward of thirty-three thousand inhabitants, situated on the west bank of the Savannah River, at the head of steamboat navigation, one hundred and thirty miles from its mouth, at an elevation of one hundred and eighty-five feet above the level of the sea, latitude $33^{\circ} 28'$ north, longitude $81^{\circ} 54'$ west. It has a good water supply, and is well sewered and drained. The sanitary administration, during recent years, has been excellent, and there have been no prevailing epidemic diseases.

The climate of Augusta is very similar to that of Aiken, S. C., from which it is only seventeen miles distant. The mean winter temperature is about 50° F., and the mean relative humidity about 60° .

The hotel accommodations are ample and excellent ; and as a winter resort for invalids affected with or predisposed to consumption, Augusta possesses many advantages.

Thomasville, a town of about fifty-five hundred inhabitants, situated on the Savannah, Florida & Western and the Atlantic & Gulf railroads, two hundred miles southwest of Savannah, at an altitude of three hundred and thirty feet above the sea level, in the midst of the long-leaved pine region, twelve miles from the Florida State line, is a deservedly noted winter health resort. The average winter temperature is about 50° F. There are two good hotels and a number of excellent boarding-houses. Horses and carriages are abundant, and the drives through the pine woods delightful and healthful.

Atlanta, the State capital, is a flourishing city of sixty-six thousand inhabitants, is situated at an altitude of one

thousand and seventy-eight feet above the level of the sea ; latitude $33^{\circ} 54'$ north, longitude $7^{\circ} 28'$ west ; in the midst of a healthful region on the divide of the water-shed separating the waters which enter the Gulf of Mexico through the Chattahoochee River, here distant eight miles, from those which find the Atlantic through Proctor's Creek, the South and Ocmulgee rivers. The Blue Ridge terminates about fifty miles to the northeast ; and bifurcating from it westward are Sweet's Mountain, the Altoona Range, Great and Little Kenesaw, and Lost Mountains. All this region and thereabout is rolling and devoid of swamps. Its salubrity, however, has been somewhat impaired by the destruction of the forests which formerly obtained.

Rome is a flourishing city of upward of fifteen thousand population, situated in the northwestern corner of the State, sixty-five miles north of Atlanta, at an altitude of nine hundred feet above sea level, in the midst of towering hills on all sides. The highest and lowest temperatures recorded during a period of seven years, 1880-86, were 82° and 34° , and the average, 60.6° . Average yearly rainfall, 47.6 inches.

The Appalachian system of mountains, which begins in the vicinity of Atlanta, consists of a belt of several parallel ridges and valleys from one hundred and fifty to two hundred miles wide, extending northward from Georgia through the Carolinas, Tennessee, Virginia, West Virginia, and Maryland, to Pennsylvania. It is everywhere equally well watered, and naturally woodland and cultivable throughout. The elevations in general are insufficiently continuous to cause any very decided contrast on the opposite slopes. The temperature and rainfall are consequently nearly equally distributed ; the atmosphere is neither excessively moist nor excessively dry ; and with various altitudes, from a few hundred to nearly seven thousand feet, a climate of remarkable salubrity obtains at all seasons.

It is in this region particularly that mineral springs abound. But it is remarkable that hereabout, as well as elsewhere in Georgia, too little attention has been given toward ascertaining the true qualities of the mineral waters or toward improving the localities of the springs. Indeed, of no less than one hundred and eighty-one mineral springs in the State, listed by

Dr. Albert C. Peale under the direction of the Division of Mines and Mining of the Census Office in 1890, the following only were found to have published analyses of their waters :

ANALYSES OF THE MINERAL SPRINGS IN GEORGIA.

CONSTITUENTS.	Angier's Mineral Springs.	Atlanta Mineral Spring.	Camp's Spring.	CATOOSA SPRINGS, 52.			
				No. 9. White Sulphur Spring.	No. 10. Bufalo Spring.	No. 1. All-Healing Spring.	No. 2. Red Sweet Spring.
	Grains. per gall.	Grains per gall.	Grains per gall.	Grains per gall.	Grains per gall.	Grains per gall.	Grains per gall.
SOLIDS.							
Sodium carbonate.....				0.26	0.03	0.25	0.29
Potassium carbonate.....				0.11	0.01	0.10	0.11
Calcium carbonate.....		Trace.	0.30	33.85	3.85	3.52	3.98
Magnesium carbonate.....				8.40	8.70	7.02	7.94
Strontium carbonate.....				0.04	0.04	0.04	0.05
Lithium carbonate.....				Trace.	Trace.	Trace.	Trace.
Manganese carbonate.....			0.05	0.02	0.02	0.01	0.02
Manganese protocarbonate..			0.01				
Iron carbonate.....				0.28	0.27	0.13	0.14
Iron protocarbonate.....			2.03				
Iron sesquicarbonate.....			0.35				
Sodium sulphate.....				1.67	1.67	1.50	1.70
Potassium sulphate.....				2.32	2.31	2.20	2.49
Calcium sulphate.....	2.5	Trace.		44.81	45.00	38.84	43.86
Magnesium sulphate.....				32.01	33.02	26.54	29.98
Aluminum sulphate.....				2.47	2.28	0.50	0.66
Strontium sulphate.....				0.20	0.29	0.20	0.23
Calcium nitrate.....				0.32	0.03	0.42	0.47
Ammonium nitrate.....				0.10	0.91	0.12	0.14
Sodium chloride.....	4.0	2.5	0.13	0.14	0.11	0.13	0.14
Calcium chloride.....	5.0	4.0	0.12				
Iron sulphide.....		Trace					
Calcium fluoride.....				0.01	0.01	0.02	0.02
Magnesium bromide.....				0.31	0.33	0.30	0.33
Calcium bromide.....				0.14	0.15	1.21	1.37
Iron sesquioxide (hydrated)..	12.5	10.5					
Sodium silicate.....			0.43				
Calcium silicate.....							
Sulphuric acid (free).....				0.12	0.13	Trace.	Trace.
Crenic Acid.....			0.02				
Apocrenic acid.....				0.01	0.01	0.02	0.02
Total.....	24.0	17.0	3.44	97.59	99.27	83.07	93.94
GASES.							
Carbonic acid.....	Cubic in. Present..	Cubic in.	Cubic in.	Cubic in.	Cubic in.	Cubic in.	Cubic in.
Hydrogen sulphide.....			2.19	9.55	9.78	1.17	1.16
Total.....			2.66	9.61	9.78	1.17	1.16

Of some of the foregoing, more in detail, and in addition are the following :

Bowden Lithia Water, Bowden Lithia Springs, Douglas County, twenty miles from Atlanta.

BELLEVUE HOSPITAL MEDICAL COLLEGE, }
NEW YORK, August 13, 1890. }

GENTLEMEN : The samples of your Lithia Water which I received from you last month, by express, the seals being un-

broken, sp. gravity at 15.5° C. 1001.8, contain per imperial gallon :

Calcium bicarbonate.....	17.247	grains
Magnesium bicarbonate	2.874	"
Lithium bicarbonate.....	4.447	"
Ferrous bicarbonate.....	0.216	"
Sodium chloride.....	121.783	"
Sodium sulphate.....	8.032	"
Potassium sulphate	1.466	"
Aluminium sulphate.....	0.530	"
Strontium sulphate	1.226	"
Calcium sulphate ...	12.153	"
Magnesium bromide.....	1.732	"
Silicic acid.....	1.263	"
Iodine.....	}	Traces.
Manganese.....		
Phosphoric acid.....		
Boracic acid.....		
Rubidium—Traces. by spectroscopic analysis.		
Loss on ignition.....	5.749	"
<hr/>		
Total solid residue by calculation.....	178.718	"
Total solids dried at 130° C.....	171.925	"
Carbonic acid in bicarbonates.....	9.911	"
<hr/>		
	181.836	"

Respectfully submitted,

R. OGDEN DOREMUS, M.D., LL.D.

BOWDEN LITHIA SPRINGS CO., LITHIA SPRINGS, GA.

Dr. T. S. Hopkins, of Thomasville, Ga., writes that he was present at the spring when the water for analysis by Professor Doremus was gathered by the manager of the company.

Indian Springs, in Butts County, a few miles from Macon, analyzed by J. B. Colton, according to whom, one pint contains

Solids.	Grains.
Carbonate of magnesia.....	1.982
Sulphate of potassa.....	3.415
Sulphate of magnesia.....	71.528
Sulphate of lime.....	7.152
<hr/>	
	84.077
Gases.	Cubic inches.
Carbonic.....	1.000
Sulphuretted hydrogen.....	3.005
Nitrogen.....	0.156

Hughes Mineral Well Water, well about one and a half miles from the city of Rome :

ATHENS, GA., November 19, 1887.

Analysis

Of a sample of mineral water for Mr. John Hughes, Rome, Ga.

Solids dissolved.	[Grains per U. S. gallon.
Sulphate of lime.....	58.314
Sulphate of magnesia.....	10.194
Sulphate of soda.....	1.536
Sulphate of potash.....	2.617
Sulphate of alumina.....	1.024
Carbonate of lime.....	8.632
Carbonate of iron.....	0.215
Sodium chloride.....	2.560
Silica.....	0.768
Organic matter and combined water	0.572
Lithia.....	traces.
Bromides.....	traces.

Total solids dissolved..... 86.432

H. C. WHITE, *State Chemist.*

The chemical constituents of this water somewhat resemble those of Hunyadi Janos, and it is said to possess similar properties.

The *Merriweather Warm Springs*, in the county of Merriweather, twelve miles from Chipley, in the Pine Mountains. Temperature of water, 95°. By analysis of Professor A. Means one pint contains

Solids.	Grains.
Oxide of magnesia.....	11.68
Oxide of calcium.....	4.64
Protoxide of iron	2.14
	18.46
Gases.	Cubic inches.
Carbonic.....	1.11
Sulphuretted hydrogen.....	trace.

Madison Springs, in Madison County, are purely chalybeate.

They are much resorted to in cases where tonics are indicated. These springs have been long established in public reputation in this section. Their elevation secures them from malarial influences.

Rowland's Springs, in Cass County, also a chalybeate, and *Gordon's Springs*, in Murray County, are of considerable local repute, and were at one time places of resort. Pure limestone springs abound in the upper part of the State.

New Holland Springs, two miles east of Gainesville, Hall County, are *calcareous*.

Chalybeate Springs.

Angier's Mineral Springs, 3, Atlanta, Fulton County. Carburetted chalybeate; *analyzed*. Table No. 1.

Atlanta Mineral Spring, Atlanta, Fulton County. Sulphuretted chalybeate; *analyzed*. Table No. 1.

Beall Spring, eight miles south of Warrenton, Warren County. Sulphuretted chalybeate.

Camp's Spring, Atlanta, Fulton County. Sulphuretted chalybeate; *analyzed*. Table No. 1.

Cannon's Spring, Toombsborough, Wilkinson County.

Chalybeate Springs, Merriweather County. Sulphuretted chalybeate.

Claremonde Chalybeate Spring, Warthen, Washington County. Carbonated chalybeate.

Ferrolithic Spring, Athens, Clark County.

Franklin Springs, 3, near Royston, Franklin County, 60° F.

Fullwood Springs, 7, near Lime Branch, Polk County.

Garnet Springs, near Toccoa Falls, Toccoa, Habersham County. Saline chalybeate.

Gowers Spring, Gainesville, Hall County.

Helicon Springs, 30, Athens, Clark County.

Lawrence Mineral Springs, 10, near Menlo, Chattooga County, 60° F.

Legg's Springs, near Jefferson, Jackson County.

Magnolia Spring, Plains of Dura, Sumter County. Sulphuretted chalybeate.

Mineral Springs, Clarkesville, Habersham County.

Mineral Springs, nine miles from Dahlonega, on Cleveland Road, Lumpkin County.

Mount Airy Springs, Mount Airy, Habersham County.

Oconee Chalybeate Springs, ten miles from Eatonton, Putnam County.

Ponce de Leon Spring, Atlanta, Fulton County, 66° F.

Porter Springs, 100, Lumpkin County, 68° to 70° F.

Powder Springs, 4, Cobb County. Sulphuretted chalybeate.

Watson's Springs, eleven miles north of Greensborough, Green County. Sulphuretted chalybeate, 60° F.

Sulphuretted Springs.

Mineral Springs, 14, six miles southwest of Newnan, Coweta County.

Oconee White Sulphur Spring, Bourke, six miles from Gainesville, Hall County.

Sulphur Springs, at Tallulah Falls, Tallulah; in Hall County; in Merriweather County; half mile east of Zoar, Bullock County.

Watson's Springs, 5, sulphuretted and chalybeate, eleven miles north of Greensborough, Green County.

White Sulphur Springs, White Sulphur Springs, 5, Merriweather County. Saline and chalybeate, 56° F.

Uncharacterized.

Bethesda Spring, Lumpkin County.

Catalytic Spring, one half mile from Catalytic.

Cohutta Springs, 10, Cohutta Springs, Murray County. Probably chalybeate.

Daniel Mineral Spring, Union Point, Greene County, near Athens, 62° F.

Dougherty's Springs, Polk County.

Everett's Springs, Everett's Springs, Floyd County.

Glenn's Spring, Early County.

Glen Ella Springs, Tallulah Falls, Tallulah, Rabun County.

Heard's Spring, Wilkes County.

Lifsey's Warm Spring, five miles south of Zebulon, Pike County, 74° F.

Magnesium Spring, Tallulah Falls, Tallulah, Rabun County.

Mineral Springs, near Toccoa, Habersham County.

Red Sulphur Springs, Walker County.

Springfield Spring, Effingham County.

Thunderstorm Spring, Thomaston, Upson County.

Trentham Spring, Fairburn, Campbell County.

The uncertainty with regard to the properties of the above-named springs, any of them doubtless of great practical util-

ity, is the more remarkable since some of them have been held in high esteem by a few persons who have knowledge of them for many years.

Professor Richard D. Arnold, of Savannah, in a letter to Dr. John Bell (published in Bell's "Mineral Springs," 1885), writes :

"I find it difficult to gather any but popular information concerning them.

"First in medicinal importance stand the *Indian Springs*, in Butts County. They are sulphurous and are much resorted to for rheumatic complaints and for disorders dependent upon depraved digestion, whether of the liver or stomach. In both chronic hepatitis and chronic gastritis some of my patients have been benefited most decidedly. I think very highly of their medicinal qualities.

"The *Warm Springs*, in Merriweather County, have gained very great reputation for curing rheumatism and gout. They are naturally warm, about 90° F., and hold magnesia, etc., in solution.

"From what I have learned and from the great relief afforded to a gouty patient whom I sent there some six years ago, I think they would prove very serviceable in podagra. Their very decided efficacy in curing rheumatism is beyond dispute."

Evidently the mineral springs of Georgia are an inviting field for enterprise by whoever will intelligently undertake to develop them.

DRAINAGE OF OKEFINOKEE SWAMP.

THE work of draining Okefinokee Swamp, the biggest undertaking of its character in America, which will eventually reclaim 220,000 acres of the finest agricultural land in the country, is progressing at a remarkably satisfactory rate. One of the engineers in charge of the work was in the city yesterday, and gave the writer an interesting chat about the scheme, which will open up a section which for centuries has

been under water and muck, the home of alligators and various other reptiles.

One hundred and fifty laborers are now at work at the swamp, and the construction of the great canal, which is to carry the water from the swamp to St. Mary's River, is being pushed forward as rapidly as machinery and human hands can accomplish it. After January 1st this force will be doubled, one half working during the day and the other at night, so that this year's results will be twice as much as that of the last twelve months.

This canal, when completed, will be 150 feet wide and 63 feet deep, with a fall of 125 feet to St. Mary's River. The most difficult part of the construction will be through a high knoll two miles long. Through the middle of the swamp, another canal, sixteen miles long, will be constructed, with small branches, the whole to act as feeders to the big drainage stream.

When the latter is completed, two hydraulic pumps, with a capacity of 30,000 gallons each per minute, will force the water off the swamps, while the largest inland dredger in the world will remove the muck and tear away the stumps, leaving behind a beautiful clay subsoil, which has become wonderfully rich by the muck accumulations of centuries. This muck averages six feet deep. The dredge is a ponderous machine 90 feet long, with a 40-foot beam. It is what is known as a combination dipper and stump-puller.

By April 1st the company will be able to secure timber from Okefinokee. In this alone the wealth of the swamp is incalculable. Its pine growth is the most magnificent in the world in point of size and quality, and its cypress deposits cannot be equalled anywhere. The pines average seventy feet to the limb, are as straight as an arrow, and from one to eight feet in diameter, while the cypress trees are enormous in size, the average diameter being from ten to twelve feet. Saw-mill men have besieged the company to secure the timber, but, as it is of such valuable quality, the company will probably erect saw-mills on the edge of the swamp and develop the timber on its own account.

The engineers expect to find many valuable curios as the work progresses. Already they have found evidences of

Indian habitation of the numerous small islands which dot the great swamp. Numbers of Indian mounds have been discovered on these islands filled with all styles of pottery, specimens of which have been sent to the Smithsonian Institution at Washington.

The most interesting curiosities, however, are expected when the big dredge begins its work of removing the muck from the swamp. The engineers believe that mammoth wild animals, now extinct, made their homes in the swamp in past centuries, and are anxiously looking forward to the turning up of carcasses to prove their theories.

Just what length of time will be required to complete the draining of Okefinokee the engineers are unable to estimate, but it is safe to say that there is work ahead for several years. When the reclamation is accomplished, the stockholders of the company who had the nerve to put their money into the scheme, which, when first broached, appeared to many as a wild vagary, will realize handsomely on their investments. It may take a long time, but it is one of those things worth waiting for.—*Savannah News*.

THE RELATIVE IMPORTANCE OF CONTAGION AND HEREDITY IN THE ETIOLOGY OF PHTHISIS.—Riffel has collated the statistics of births and deaths of all the families of a small district in Germany with special reference to this point, and from them comes to the following conclusions: There are very few families which in the course of time are not attacked by consumption, and when it once enters it is usually progressive, and by marriage propagates itself in other families, sometimes, however, sparing whole generations. The death-rate among children in consumptive families is very great, especially where both parents have an hereditary taint; if one only is affected, it is immaterial whether it be the father or mother. The transmission of the disease from one person to another, or from husband to wife, or *vice-versa*, or through dwelling-houses, could not be proved to have taken place. The children of phthisical parents often developed consumption, even if they had left their parents' house while still perfectly well, and had gone to other dwellings or even other localities.—*Boston Medical and Surgical Journal*.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

MALT EXTRACT—A THERAPEUTIC STUDY, is the subject of a contribution to the *Journal of Balneology* for January by John Auld, M.D., of Philadelphia, dwelling in particular upon diastase, its most important principle, and the ill effects of salicylic acid.

“Failure of the digestive apparatus,” he says, “is not always an indication for the employment of artificial ferments. I refer to diastase, a valuable principle found in malt extract, a remedial agent.

“Diastase is a soluble substance, and possesses the power of dissolving starch, converts it into gum (dextrin), and finally into grape sugar, or a substance which upon analysis closely resembles grape sugar, as it exists naturally in the grape. The amylolytic properties of diastase are, in some respects, similar to that of the pancreatic juice; and when we desire to act upon starch alone it will frequently prove serviceable when pancreatin cannot be used, owing to the destructive action of the gastric juice upon this delicate product. The activity of diastase is much like that of pepsin, except that the latter acts only upon albuminoids; the proteolytic power of a good pepsin is about the same as the amylolytic power of a good diastase, one part of the former being sufficient to convert two thousand parts of albumen into peptone, while one part of diastase will convert two thousand parts of starch into grape sugar. When we take into consideration the distinct therapeutical properties of diastase, together with the persistent demands of patients suffering from intestinal indigestion due to the consumption of starchy food products, the rapidly increasing facilities on the part of manufacturers supplying physicians with malt extracts may be appreciated.

“Physicians in special practice do not hesitate to order malt extract for patients by the dozen bottles, often without other medication, in cases which have been passed over to them by

the general practitioner. My own experience with a reliable preparation has been so uniformly successful that I am prompted to publish my conclusions, believing that by this means others may be guided into the same channel. To determine what is meant by a reliable preparation, several questions are to be considered, the most important of which, viewed from a medical standpoint, may be mentioned as follows :

“ 1. Diastasic power, or its ability to convert starch.

“ 2. Purity, or its freedom from substances calculated to impair the therapeutic value of the product.

“ 3. Palatableness, because we wish to avoid nauseating mixtures where malt extract is indicated.

“ These questions will be discussed in a general way in the order of their occurrence. Attention first should be called to an erroneous impression which obtains—viz., that malt extract, ale, beer, and porter are substantially the same, and consequently some physicians are opposed to the use of either, believing it contrary to public policy to encourage the establishment of breweries. The facts are, that malt extract is a product which differs materially from all the others in its manufacture, diastasic power, and contained alcohol. Dr. Coleman's investigations form a specific contradiction of this assumption.

“ The diastasic power is a property which may be demonstrated, and in considering the claims of any preparation this subject should receive our first attention. When this important quality is lacking, we are to inquire whether or not the cause is due to an excess of alcohol or to the addition of salicylic acid or other objectionable substances as preventives. Both alcohol in excess and salicylic acid retard and practically destroy the diastasic power of malt extract, which may account for the favorable results obtained by Professor Coleman with the genuine Johann Hoff's malt extract, containing, as it does, but three and one half per cent of alcohol and no salicylic acid. Professor Leffman, the well-known analytical chemist and expert, says, ‘ The effects of salicylic acid have been extensively studied, and the unanimous opinion of sanitary chemists is that it is very objectionable as an addition to any form of food or drink, and especially objectionable in malt extract. From some observations made in my own laboratory

it appears that not only does salicylic acid wholly suspend the action of diastase, to which malt owes its starch-converting power, but that the starch-digesting power of the pancreatic secretion is wholly suspended by it. It thus appears that the addition of this body is to render the extract not only inactive so far as its own function is concerned, but it introduces into the system an injurious substance which interferes with another important function.' ”

A PLEA FOR CLEANLINESS IN THE TREATMENT OF NASOPHARYNGEAL CATARRH is the title of a paper by Dr. Edward J. Bermingham, Surgeon-in-Chief to the New York Throat and Nose Infirmary, in which he lays stress upon the importance of cleansing the nasal cavities from one to three times daily after any existing stenosis has been relieved, and during the employment of topical medication by the surgeon. If the parts are not cleansed, the medication does not reach the diseased mucous membrane, and treatment will be disappointing. Proper cleansing with an alkaline, antiseptic, non-irritating and deodorizing solution will alone cure fifty per cent of cases of simple hypertrophic catarrh, and will benefit atrophic cases. He gives preference to a 25 per cent solution of glyco-thymoline as a cleansing fluid. He condemns the old-time douche and all those where any force is used, and advises that the fluid be introduced through a small glass douche devised by him, which allows the fluid to gravitate slowly to the naso-pharynx. Here it should be kept in contact with the parts for a minute or two before the nose and throat are cleared.—*New York Medical Journal*, March 11th, 1893.

NOTE ON THE PEROXIDE OF HYDROGEN is the subject of a paper read by Dr. A. Jacobi (*Archives of Pædiatrics*, December, 1892), in which he cites several cases illustrative of what he appears to consider the disastrous effects of that agent in the treatment of diphtheria to such a degree that he would wholly supplant it by the use of lime water. The cases cited are remarkable in that they show results common to very bad cases of diphtheria despite the most effective treatment—hyperæmic and sensitive mucous membrane more or less

studded with white flakes and shreds. He saw none of the *casas*, so far as stated in the "Note," until the *disease* had been arrested ; he was then fortunately called just in time to save the patients from the results of the treatment.

His conclusion is that " many of the ' pseudo-membranes ' which are noticed on mucous membranes treated with peroxide are artefacts. They are the result of the coagulation of the albumen of the secretions and the albumen (and fibrin) of the sore tissues it comes in contact with. What I have examined consisted mostly of fibrin, a few leucocytes, a very few blood cells and epithelia. The neighborhood of diphtheritic membranes is mostly deprived of epithelial covering. It is on this denudation of the surrounding mucous membranes that the extension of the morbid process is mostly dependent upon. Thus, whatever irritates that neighborhood, whatever irritates even mucous membrane at a distance, besides covering it with a fibrinous exudate which may *look* like diphtheritic, though far from so being, *may give rise to actual diphtheria*. The peroxide will have that effect, as strong solutions of bichloride of mercury have, or nitrate of silver, or scratching, brushing, and violence generally. I, therefore, do not mean to say at all that I attribute none but deleterious effects to the peroxide, just as little as I am willing to speak of the deleteriousness of bichloride because of injudiciousness does harm with it ; deleterious in peroxide is the persistent use of it after it has rendered its service ; dangerous is its property to coagulate the surface albumen of the healthy tissue as well as the unhealthy exudation ; deleterious is principally the quackishness which preaches absolute harmlessness and positive efficacy in every stage of every case of almost the whole index of maladies in the interest of ' business.' "

So that, after all, peroxide of hydrogen may still be regarded, as described by Dr. E. R. Squibb, soon after it was introduced (*Gaillard's Medical Journal*) : " Perhaps the most powerful of all disinfectants and antiseptics, acting both chemically and mechanically upon all excretions and secretions, so as to thoroughly change their character and reactions instantly. . . .

A child's nostrils, pharynx, and mouth may be flooded every two or three hours, or oftener, from a proper spray apparatus with a two-volume solution without force and very little dis-

comfort ; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, as thus the effect of corrosive sublimate is obtained without its risks or dangers."

Dr. C. F. Adams, of Pulaski (*Medical Era*), writes : " I have just discharged three cases of diphtheria that I treated with Charles Marchand's peroxide of hydrogen. I sprayed the throat with an atomizer filled with full strength solution of peroxide in the early stages. The membrane was removed almost at once, and after the first application and one complete clearing of the throat, I then reduced the solution by adding three parts water to one of peroxide, and by spraying the throat thoroughly as often as once an hour, all membrane was destroyed, the breath was kept sweet, and the throat in a fairly comfortable condition. When used at first in full strength, the patient may complain of a slight smarting, but no irritation results. . . . I can assure all who try peroxide of hydrogen as a local application in diphtheria, that they will be thoroughly well pleased with it."

Dr. J. Lewis Smith (*Doctor's Weekly*) " uses Marchand's peroxide of hydrogen (medicinal), one part to three parts of water, with much satisfaction. It is prompt in action, and quickly *destroys* the diphtheritic membrane."

RECENT METHODS IN TYPHOID-FEVER.—Dr. J. W. King (*Times and Register*, December 31st, 1892) describes a case of typhoid-fever in which the temperature reached 107.2° ; the abdominal hemorrhages were frequent, and collapse was several times imminent. Phenacetine in ten-grain doses, and afterward phenacetine and salol in like doses, was employed with excellent results. Sulpho-carbolate of zinc also was used, but the results were not satisfactory. Ergotin, digitalis, strophanthus and ætheris comp. were judiciously used *pro re nata*. Sponging was found advantageous. Dr. E. T. W. Hall (*loc. cit.*) expresses a preference for the sulpho-carbolate of zinc over like agents. He gives quinine in small doses for its tonic effect in typhoid-fever, sometimes adding diluted muriatic acid. Dr. Hall, like Dr. King, believes in cold sponging, which, " besides its antiseptic effects, quiets the delirium and acts as a tonic to the general system," stating,

furthermore, "to this may be added one five-grain dose of phenacetine at night." But he does not approve of the coal, tar derivatives in general. In an article on typhoid-fever by Dr. J. P. Wall (*Gaillard's Medical Journal*, December, 1892), the author states that phenacetine in ten-grain doses every five hours "keeps down the fever well." He says, "My preference for phenacetine is due to the fact that it rarely if ever produces cyanosis—never in my experience." In other articles on typhoid-fever the use of the same antipyretic is advised. Dr. A. C. Mason (*Boston Medical and Surgical Journal*, April 14th, 1892) recommends "phenacetine in three, five, or ten-grain doses." Dr. Bailey (*American Practitioner and Neurologist*, September 24th, 1892) writes: "I give phenacetine without hesitation under all circumstances." In typhoid-fever he employs phenacetine and salol, and disinfects the canal with arg. nit.

TRIONAL, under quite recent clinical tests, is found to have a special value in uncomplicated agrypnia, or wakefulness with a certain amount of excitement. In these cases it is said to have acted promptly and effectively in doses of one to two grammes. Trional is useful also in convalescence from the abuse of cocaine and morphine. Some of the reports state that doses of two grammes would usually procure for these patients a sleep of from seven to nine hours' duration. According to a recent report by Boettiger, dementia with hallucinations was very favorably influenced by trional. The same writer reports thirty-three cases of insomnia with physical disturbances in the insane. These were primary or secondary, or were accompanied by moderate delirium or motor restlessness. Doses of one to two grammes of trional promptly induced a sleep of six to ten hours. The full report of the cases referred to was published in the *Berl. Klin. Woch.*, No. 42, 1892.

RECENT OBSERVATIONS ON SULFONAL.—In a recent number of the *Birmingham Medical Review*, Dr. T. Sidney Short states that in his clinical experiences with sulfonal he often obtained a more rapid action from the drug than he had supposed it to possess. Doses of only fifteen grains sometimes

produced sleep in a very few minutes, and he cites five cases in which the same quantity caused sleep in fifteen minutes. He writes : " I cannot point to any derangement of respiration circulation, or appetite as following its use, nor any case of cyanosis." Dr. Harding (*Medical World*, March, 1892) writes : " I have used sulfonal in an extensive country practice, and find that it produces natural sleep and has no other action ; in sulfonal we have a safe hypnotic that can be administered to the aged as well as to those suffering from organic diseases, and it works admirably with children. Sulfonal will quiet the irritability of teething ; it will often prevent convulsions and relieve nervous excitement, and it induces a peaceful sleep. Sulfonal does not constipate, depress the system, or impair the appetite ; it leaves no sequelæ, and is accompanied by none of those phenomena sure to accompany the administration of opium, chloral, and the bromides."

THE COAL-TAR DERIVATIVES—THEIR USE AND ABUSE.—Dr. C. W. Murphy, of Salem, Ind., read a paper on this subject at the meeting of the Mitchell District Medical Society, Indianapolis, July 7th, 1892. His remarks were chiefly confined to antipyrin, antikamnia, acetanilid, and phenacetine, because, he said (*Medical and Surgical Reporter*, July 7th, 1892), these were the most frequently used and important of the newly discovered chemical agents. Antifebrin and acetanilid are the same articles under different names. When the physician prescribes acetanilid he gives its pharmaceutical name ; when he prescribes antifebrin he gives its proprietary name ; the former is very cheap, the latter more expensive.

All of these agents come under the head of anodynes or analgesics, possessing the property of lessening the sensibility of the nerve centres or their peripheral extremities, but in varying degrees. They are also antipyretic in action, and it should never be overlooked that their effect on the system when fever is present is much more powerful than when it is absent. While opium will always stand at the head of anodynes, its objectionable features of generally inducing constipation, cephalalgia, nausea and deranged digestion cause us to make use of the less harmful remedies for the relief of pain in a large class of ailments. The dose of antipyrin should be ten

or fifteen grains, and if the pain is not relieved in one or two hours, repeat the dose. Antikamnia, acetanilid and phenacetine are also useful in hemicrania ; and all four can be depended upon for the certain relief of hyperæmic headaches.

He had many patients who prevent paroxysms of sick headache by one or two doses of antifebrin of six to eight grains each. Some get relief from antipyrin when antifebrin fails. He had used phenacetine in a number of cases of pertussis, and believes it serves a useful purpose in diminishing the severity and frequency of the paroxysms of coughing. For the relief of enteralgia, gastralgia, and other nervous affections of the bowels, dependence cannot be placed upon any of these ; but antikamnia has given relief in a number of cases of these affections. All of the series have a wide range of usefulness in the treatment of the grip in relieving the severe muscular and neuralgic pains and in reducing the fever.

The use of all antipyretic remedies must be persisted in until the desired end—the reduction of temperature—is secured ; but the peculiarities of each patient must be studied, and these agents must be administered in a way to suit each individual case. A dose that would give the desired result at one period of a disease might prove insufficient or excessive at another period ; and a dose that would lower a temperature to the required degree in one individual might require double that amount to get the same result in another. Many authorities recommend giving five to ten grains regularly every three or four hours. In this he does not agree, for it is well known that in nearly all fevers, if it comes up again any time in the afternoon or evening, another dose is given. Should one dose fail to make an impression on the fever, which but seldom occurs, another dose should be given at the expiration of two hours. In this manner, with from one to three doses, the temperature in almost all fevers is easily maintained below 103° ; and, as already stated, it prevents undue tissue waste, lessens nervous irritability, promotes sleep, prevents delirium and complications, and, therefore, lessens the mortality.

INTESTINAL ANTISEPSIS, in the treatment of hyperhydrochlorosic dyspepsia, was the subject of discussion before the Société de Thérapeutique, during which M. Huchard said

that it is often useless ; because, in his opinion, hydrochloric acid is itself an antiseptic. To produce intestinal antiseptis, it is necessary, in his opinion, to employ large quantities of benzo-naphtol—from 8 to 20 grammes—five grammes at each meal mixed with charcoal. *R.* Benzo-naphtol, 20 grammes ; carbon pulv., 5 grammes ; make 30 powders. Take from 8 to 10 powders a day.

M. Bardet does not believe in the antifermentative properties of hydrochloric acid. This acid must have been neutralized when it reaches the intestines. The migraine of hyperhydrochloric dyspeptics is due to the absorption of toxic elements.

The treatment of hyperhydrochloric dyspeptics has again been the subject of a very interesting discussion. MM. Bovet and Dujardin-Beaumetz have insisted on the necessity of examining the contents of the stomach as the basis of diagnosing the nature of the dyspepsia and the extent of the disease.

The diet of the patient should be varied according to the quantity of hydrochloric acid secreted. In those cases in which the hydrochloric acid is weak, rare meat is more easily digested than a vegetable diet. Bread, wine, and fruits are especially injurious. If bread is given, it must be toasted. The alkaline regimen, if it does not exceed 6 to 8 grammes a day, may be very useful. Milk must be substituted for fats in some cases of stomach trouble.

M. Huchard distinguishes three kinds of gastric dilatation in hyperhydrochloric cases of dyspepsia :

1. Gastric dilatation, co-existing with hyperacidity, and due, probably, to a contracted state of the pylorus ; it disappears rapidly if a strong alkaline medicine is employed.

2. Gastric dilatation, due to the retention and accumulation of alimentary substances in the stomach, an accumulation and retention which are certainly favored by a vegetable diet. The proof of this is furnished by the history of one of my patients, in whom I caused the distention to disappear rapidly by substituting a mixed regimen for the vegetable diet which had been previously recommended for him.

3. Incurable gastric dilatation—that of Bouchard—which is the result of lesions of the mucous membrane and the muscular tissue of the stomach, as a consequence of the incres-

ant irritation caused by gastric hyperacidity. This clinical distinction between the different forms of gastric dilatation is important, if it is desirable to form a prognosis as to the degree of curability of the disease.

FRACTURES OF THE CRANIUM, resulting in loss of bone, or loss of bone from any other cause, are generally treated at Vienna by the application of a plate of celluloid. These plates are covered with the skin and are generally well borne. Weinlechner has reported many cases of this kind.

The antiseptic treatment of wounds of the brain has also been discussed before the Imperial Royal Society of Medicine of Vienna. The choice of antiseptics in such cases is of the greatest importance; boric acid has generally proved very satisfactory; phenic acid must be used in very weak solutions—the sublimate is generally injurious, and should be avoided.

SUBCUTANEOUS INJECTIONS OF SUBLIMATE have been found exceedingly useful by M. Darier in many very severe cases of disease of the eye, as in ulcers of the cornea, in keratitis, in iritis, in choroiditis, and even in some cases of retinitis.

“As an antiseptic,” he says, “they have a powerful and rapid action in infectious ulcers of the cornea, and in septic wounds of the globe of the eye; applied in time they prevent phlegmonous inflammation of the globe. Many cases of sympathetic ophthalmia have been cured or very much relieved by this treatment. It is the same in cases of infection following an operation for cataract, an iridectomy, and the like. Very satisfactory results have also been obtained from it in internal diseases of the organ—in interstitial keratitis, in circumscribed chronic iritis, irido-choroiditis, etc.

“In the diseases of the interior of the eye, and especially in central choroiditis and similar cases, the beneficial effects of subconjunctival injections are most obvious; it is the same in certain cases of retinitis, in some forms of atrophy of the optic nerve, whether of peripheral or intra-ocular origin.”

All these facts, announced by M. Darier, have been confirmed by different ophthalmologists in France and in other countries, and especially by MM. Abadie, Rogmann, Coppez, Flüger, Chibert, Dufour, and others.”

MONOCULAR DIPLOPIA.—A case of tubercular disease of the cerebral peduncles is reported in a recent number of *La France Médicale* as follows: A young girl, 22 years of age, of tuberculous diathesis, was attacked in the month of March, 1891, with incomplete hemiplegia of the left side and paresis of the lower half of the face and slight ptosis of the right upper lid. On the left side all the muscles of the eye are involved.

The right eye being closed for the purpose of studying the movements of the left, the patient remarked, unsolicited, that she saw two objects. A pin was placed at a distance of 30 centimetres from the left eye, and the patient distinctly saw two pins, the two images separated one from the other as the pin was removed to a greater distance and the image on the temporal side became dim and finally disappeared altogether when the object had been removed to a sufficient distance.

The acuteness of vision was not perceptibly diminished, although the initial stage of an optical neuritis existed on both sides. Such was the condition of the patient when she entered the Hôtel Dieu, of Lyons, where the following observations were made by M. Bouvert:

On June 11th an attack of convulsions was observed on the left side, which was most severe in the upper limb; on the 17th the optic neuritis was more marked, and small hemorrhagic spots were observed along the vessels around the papillæ. On July 2d the right side was attacked with paralysis of the third pair; on July 10th choreic movements were observed in the limbs of the right side. On August 4th there was marked dulness and partial loss of intelligence; on September 8th ophthalmophlegia nearly complete on both sides. The intelligence is very much lessened, the respiration becomes irregular, and the patient dies on September 17th.

At the autopsy, old tuberculous lesions were found, limited to the apices of both lungs.

"Within the encephalon, in the left hemisphere, near the base of the second frontal and at the union of the gray substance with the white, small cheesy masses, very limited in extent, were found. On dividing the peduncles a tuberculous tumor, formed of two cheesy masses, very resistant, of the size of a small filbert, existed. One occupied the right

peduncle, which it had almost entirely destroyed, and projected toward the occipital cornua of the lateral ventricle and advanced to the fissure of Sylvius, at which point it had destroyed the gray substance, but it did not pass the superior border of the protuberance. The other cheesy mass occupied the median region and posterior to the divided surface of the peduncles, extended a little into the left cerebral peduncle. All the other regions of the brain were healthy.

The diplopia was observed during three weeks, then it disappeared gradually as the intelligence became more and more clouded. This young girl was not in the least hysterical. The diplopia, therefore, it may reasonably be supposed, was caused by the tumor in the cerebral peduncles, as was the other nervous troubles. The small cheesy mass of the frontal lobe, situated quite remote from the sphere of vision, must be excluded from the important facts in the case.

Authors attribute monocular diplopia of the left eye to the progressive invasion of the different centres originating in the common motor of the eye, and to its disturbance and the subsequent destruction of the centre of accommodation. Their conclusion is : There is a monocular diplopia of nuclear origin, and this diplopia may be caused by organic lesion.

CATERPILLARS IN PILL-BOXES.—Mr. E. B. Boulton, F.R.S., fascinated the Biology Section of the British Association with the results of his experiments on caterpillars hatching in pill-boxes. The pepper moth was the particular insect which he experimented on, and his experiments show that if you take an egg of one of these and grow it in a gilded pill box you get a golden caterpillar. Again, if the pill box be black, so is the caterpillar; while a mixed environment produced a muddled creature, just as in man the environment of the slum or the palace pretty much determines a person's characteristics.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076: T. S. Scales, M.D., Health Officer, reports for the month of January a total mortality of 90, of which number 21 were under five years of age, and 47 were colored.

The annual death-rate was 34.80 per 1000. There were 12 deaths from zymotic diseases, and 11 from consumption.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Reports from 112 cities, towns, villages, and sanitary districts, having an aggregate population of 841,285, show a total of 1218 deaths from all causes. ' This corresponds to 1.44 per 1000 for January, or 17.28 per 1000 per annum. There were 211 due to consumption, 107 to pneumonia, 86 to bronchitis, 10 to congestion of the lungs, 3 to diarrhœa and dysentery, 2 to cholera infantum, 54 to other diseases of the stomach and bowels, 27 to diphtheria and croup, 18 to scarlatina, 1 to small-pox, 2 to whooping-cough, 19 to typhoid-fever, 3 to malarial fevers, 7 to cerebro-spinal-fever, 42 to cancer, 1 to erysipelas, 110 to diseases of the heart, 4 to alcoholism, and 501 to all other causes. The mortality for January is lower than the corresponding month of the last two years. In January, 1891, it was 1.64; in January, 1892, 1.95; while in January, 1893, it was 1.44. In 1891 there were, during January, 397 deaths from diseases of the respiratory organs, 595 in 1892, and 414 during January, 1893.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, sums up the mortality reports for January as follows:

The mortality report for January has been received from every town in Connecticut.

There were 1279 deaths reported in the State during the month. This was 238 more than in December ; it was 674 less than in January, 1892, and 20 less than the average number of deaths in January for the five years preceding the present.

The number of deaths in the first month of this year compared with the same of each of the five years preceding was as follows : 1893, 1279 ; 1892, 1953 ; 1891, 989 ; 1890, 1648 ; 1889, 892 ; 1888, 1015.

The death-rate was 20.7 for the large towns ; for the small towns, 16.8, and 19.5 for the whole State.

The deaths from zymotic diseases were 222, being 17.3 per cent of the total mortality, precisely the same as in the previous month.

The deaths from consumption numbered 131.

New Haven, 95,000 : Total mortality, 207. Annual death-rate per 1000, 26.0.

Hartford, 58,600 : Total mortality, 142. Annual death-rate per 1000, 27.6.

Bridgeport, 55,000 : Total mortality, 102. Annual death-rate per 1000, 21.8.

Waterbury, 34,000 : Total mortality, 48. Annual death-rate per 1000, 17.0.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for four weeks ending February 25th a mortality of 470, of which number 227 were of colored people, and 177 were under five years of age. The annual death-rate was 18.5 per 1000. There were 44 deaths from zymotic diseases, and 54 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

In *Florida Health Notes* the summary for the month of January is as follows : Number of counties reporting, 28 ; number of cities reporting, 2 ; total population of said counties and cities, 297,071 ; number of births reported, 381 ; number of deaths reported, 294 ; birth-rate per 1000 per annum, 15.39 ; death-rate per 1000 per annum, 11.07 ; average age of

this month's decedents, 30.34 ; number of deaths under five years of age, 86.

Pensacola, 15,000 : R. W. Hargis, M.D., President, reports for the month of February, 1893, 17 deaths, of which number 3 were under the age of five years. The annual death-rate was 13.6 per 1000.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

Evansville, 50,756 : L. Worsham, M.D., Health Officer, reports for the year 1892 a mortality of 887, of which number 321 were under five years of age. The death-rate was 17.5 per 1000. During January, 1893, there were 68 deaths—17 under five years of age—representing an annual death-rate of 16.07 per 1000. There were 9 deaths from zymotic causes, and 15 from consumption.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for the month of January :

Burlington, 25,000 : Total deaths, 28. Annual death-rate, 18.0 per 1000.

Council Bluffs, 35,000 : Total deaths, 22. Annual death-rate, 0.72 per 1000.

Davenport, 34,500 : Total deaths, 44. Annual death-rate, 12.0 per 1000.

Des Moines, 70,000 : Total deaths, 54. Annual death-rate, 0.72 per 1000.

Dubuque, 40,000 : Total deaths, 36. Annual death-rate, 1.08 per 1000.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored. There were reported for four weeks ending February 25th, 544 deaths, of which number 200 were among the colored people, and 107 of children under five years of age. There were 74

deaths due to zymotic diseases, and 74 to consumption. The annual death-rate was 27.94 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for February that the number of deaths was 731, a decrease of 113, compared with the corresponding month of February, 1892. Of these 551 were whites and 180 colored—a death-rate of 17.19 per 1000 for the former and 30.42 per 1000 for the latter. The death-rate per 1000 for the whole population was 19.25. 23 died from infectious diseases, 80 from consumption, 114 from pneumonia, 25 from bronchitis, 4 from influenza, 20 from bright's disease, 258, or 35.29 per cent of the total deaths were in children under five years of age.

During the month 187 cases of infectious diseases were reported, a decrease of 23 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.

Boston, 469,647 : S. H. Durgin, M.D., Chairman.

There were 1026 deaths reported in January, of which number 297 were under five years of age. The annual death-rate per 1000 was 26.21. There were 136 deaths from zymotic diseases, and 132 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of February, 1893, compared with the preceding month, the reports indicate that measles, inflammation of kidney, and erysipelas increased, and that scarlet-fever decreased in area of prevalence.

Compared with the preceding month, the prevailing direction of the wind was the same (northwest), the velocity was greater, the temperature was higher, the rainfall at Lansing was .47 of an inch more, the absolute humidity was more, the relative humidity was the same, the day and the night ozone were more, and the height of ground above the water in the well at Lansing was four inches less.

Compared with the average for the month of February in the seven years 1886–92, measles was more prevalent, and in-

intermittent-fever, diarrhœa, remittent-fever, and pneumonia were less prevalent in February, 1893.

For the month of February, 1893, compared with the average for corresponding months in the seven years 1886-92, the prevailing direction of the wind was northwest (instead of southeast and southwest), the velocity was greater, the temperature was lower, the rainfall at Lansing was .01 of an inch more, the absolute humidity was less, the relative humidity was more, the day and the night ozone were more, and the height of ground above the water in the well at Lansing was seven inches more.

Including reports by regular observers and others, diphtheria was reported present in Michigan in the month of February, 1893, at sixty-nine places ; scarlet-fever, one hundred and four ; typhoid-fever, twenty-eight ; measles, sixty-nine, and small-pox at two places.

Reports from all sources show diphtheria reported at twenty-three places less ; scarlet-fever at thirty-six places less ; typhoid-fever at twenty-nine places less ; measles at twelve places more in the month of February, 1893, than in the preceding month. Small-pox was reported at the same number of places.

Detroit, 230,000 : S. P. Duffield, M.D., Health Officer, reports for the month of January 350 deaths, of which number 83 were under five years of age. The annual death-rate was 17.92 per 1000. The deaths from zymotic diseases numbered 52, and from consumption, 31.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

Minneapolis, 209,000 : E. S. Kelley, M.D., Commissioner of Health, reports for January a mortality of 183, of which 62 were under the age of five years. The annual death-rate was 8.75 per 1000. There were 20 deaths from zymotic diseases, and 19 from consumption.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent, reports that during January there were 149 deaths, representing an annual death-rate of 13.3 per 1000.

Deaths under five years of age numbered 46. From zymotic diseases there were 16 deaths, and from consumption, 16.

Reported cases of contagious and infectious diseases numbered 72.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Paterson, 90,251: J. L. Leal, M.D., reports for January 144 deaths, of which number 52 were under five years of age. The annual death-rate was 19.03. There were 21 deaths from zymotic diseases, and 18 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows:

The average daily death-rate during January was 338, which is 30 more than in December. The number of deaths is far below that of January, 1892, because of the then existing prevalence of the grip; deducting this and making allowance for a normal increase, the mortality is excessive for January by between 600 and 700 deaths. The zymotic mortality was a little higher than in December, the only increase being in scarlet-fever, which shows a continued rise; there were 237 deaths from it; its prevalence continues chiefly in the eastern part of the State. There is a slight increase only in deaths from diarrhœal diseases, although there has been reported the extended prevalence of so-called winter diarrhœa. The mortality from acute respiratory diseases is excessive, by not less than 400, there having been 2300 deaths attributed to this cause. Other local diseases show, however, little variation from the normal average. From old age there is a large increase; this was noted a year ago. Also from unclassified causes, which includes certain chronic wasting disorders, there is an increase. A considerable number of deaths have been returned from the grip, and it would appear that it has caused about 600 deaths, and has been the cause of the increase in the mortality from respiratory diseases, some diathetic diseases and old age. There were 61 deaths from typhus-fever in New York. From small-pox there were 15 deaths, all

occurring in the maritime district, outside of which it does not exist, although mild cases originating there developed early in the month in Waterloo. Reports from six large cities of 6550 deaths gives a death-rate of 22.70 per 1000 population ; that of the rural parts of the State was 19.00. In the cities there were 142 deaths from zymotic diseases per 1000 deaths from all causes, and in the country 112. The proportion of diarrhoeal mortality in the cities, as compared with the country, was about 3 to 2 in the same number of inhabitants.

New York, 1,860,803 : Total deaths, 3726—1297 under five years. Death-rate, 22.56. Zymotic diseases per 1000 deaths from all causes, 136.10. Deaths from consumption, 412. There were 76 cases of typhus-fever in the Riverside Hospital February 4th, since which time, to March 4th, there have been admitted 54 cases. Of this number 25 have died and 70 have been discharged.

Brooklyn, 978,394 : Total deaths, 1767—632 under five years. Death-rate, 21.26. Zymotic diseases per 1000 deaths from all causes, 136.38. Deaths from consumption, 183.

Syracuse, 91,944 : Total deaths, 145—34 under five years. Death-rate, 17.62. Zymotic diseases per 1000 deaths from all causes, 200.00. From consumption, 17.

Albany, 98,000 : Total deaths, 234—65 under five years. Death-rate, 28.18. Zymotic diseases per 1000 deaths from all causes, 115.37. From consumption, 22.

Buffalo, 290,000 : Total deaths, 446—196 under five years. Death-rate, 18.46. Zymotic diseases per 1000 deaths from all causes, 149.00. From consumption, 44.

Rochester, 144,834 : Total deaths, 231—76 under five years.

Death-rate, 19.14. Zymotic diseases per 1000 deaths from all causes, 256.54. From consumption, 23.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

There were reported during the month of January 150 deaths in twenty-five towns aggregating 124,108 inhabitants. The annual death-rate was 14.5 per 1000.

Typhoid-fever caused 2 deaths ; diarrhoeal diseases, 2 ; heart diseases, 22 ; brain diseases, 7 ; pneumonia, 21, and consumption, 19.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

Cincinnati, 305,000 : J. W. Prendergast, M.D., Health Officer, reports for the month of February 487 deaths, of which number 167 were under five years of age. The annual death-rate was 19.16 per 1000. There were 62 deaths from zymotic diseases, and 51 from consumption.

Mansfield, 15,000 : R. Harvey Reed, M.D., Health Officer, reports for February, 1893, 12 deaths, representing a death-rate of 9.9 per 1000 per annum. There were 5 deaths under five years of age.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer, reports :

In the three weeks ending February 25th, 1893, there were 1427 deaths, of which number 452 were under five years of age. Annual death-rate, 22.23 per 1000. Deaths from consumption numbered 172.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the four weeks ending February 25th, 1893, there were 433 deaths, of which 191 were under five years of age. Annual death-rate, 22.06 per 1000. Zymotic diseases caused 60 deaths, and consumption, 38.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the year 1891 :

Total number of deaths, 6620, of which 1530 were classed as zymotic, 1174 constitutional, 2801 local, 779 developmental, and 336 violence and otherwise. From special causes there were of diphtheria and croup, 169 ; scarlatina, 33 ; typhoid-fever, 149 ; consumption, 740 ; pneumonia, 568 ; bronchitis, 247, and heart diseases, 447. The death-rate per 1000 was 18.6—the lowest since 1885, when it was 17.7.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of January were : Pneumonia, the grip, bronchitis, typhoid-fever, whooping-cough, rheumatism, diphtheria, measles, scarlet-fever, mumps, and consumption. The grip was reported in the counties of Chester, Davidson, Decatur, Dickson, Dyer, Gibson, Jackson, Montgomery, Rutherford and Williamson ; typhoid-fever in Anderson, Decatur, Hamilton, Humphreys, Lincoln, Robertson, Shelby and Wilson ; whooping-cough in Davidson, Humphreys, McNairy, Moore and Rutherford ; diphtheria in Davidson, Franklin, Shelby and Wilson ; measles in Blount, Bradley, and Robertson ; scarlet-fever in Davidson, Humphreys and Shelby ; chicken-pox in Hamilton and Rutherford ; consumption in Davidson and Houston.

Chattanooga, 27,000 white and 13,000 colored : Total deaths, 40—26 of which were colored, and 14 under five years of age. Annual death-rates, 6.22 for the white population, and 24.00 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored : Total deaths, 47—20 of which were colored, and 12 under five years of age. Annual death-rates, 10.35 white, and 26.32 colored, per 1000.

Memphis, 33,800 white and 27,700 colored : Total deaths, 135—79 of which were colored, and 20 under five years of age. Annual death-rates, 19.88 white, and 34.22 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths, 130—69 of which were colored, and 34 under five years of age. Annual death-rates, 13.40 white, and 24.96 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

In the first annual report of the State Board of Health it is shown that there were 1356 deaths during the year ending

September 30th, 1892, of which number 436 were under five years of age. There were 308 deaths from zymotic diseases, and 121 from consumption.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

Milwaukee, 250,000 : U. O. B. Wingate, M.D., Health Officer, reports for the month of February 298 deaths, of which number 156 were under five years of age. Annual death-rate, 14.30 per 1000.

From zymotic diseases there were 42 deaths, and from consumption, 16.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

Montreal, 218,268 : Louis Laberge, M.D., Medical Health Officer, makes report for the year 1891, of which the following is an abstract : There were 5391 deaths reported, giving a death-rate of 24.24 per 1000, which was 0.56 less than the preceding year and 2.47 less than the average for the five preceding years. There were 3115 deaths of children under five years of age—57.78 per cent of the total mortality.

Zymotic diseases caused 1294 deaths, and consumption, 515.

BUENOS AYRES, 554,713 : Albert B. Martinez, Director-General of Municipal Statistics. The report for the month of December, 1892, shows that there was a total mortality of 1315, of which number 807 were of children under five years of age. From infectious and contagious diseases there were 101 deaths ; from pneumonia, 62 ; from meningitis, 105 ; from gastro-enteritis, 134 ; still-births, 131.

MORTALITY STATISTICS ABROAD FOR THE YEAR 1892.

Population, total number of deaths, annual death-rate per 1000, and deaths from small-pox :

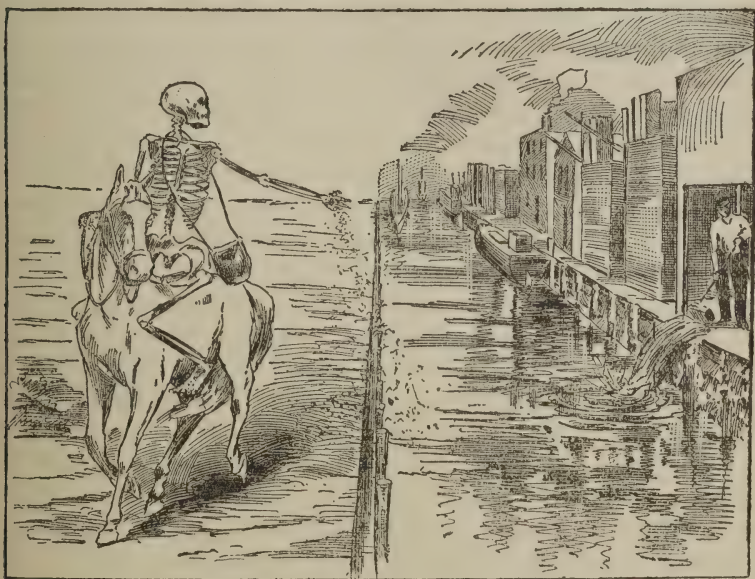
London, 4,263,294 ; 87,750 ; 20.6 ; 41. Glasgow, 669,143 ;

15,142 ; 22.6 ; 10. Liverpool, 513,790 ; 12,672 ; 24.7 ; 13. Manchester, 510,998 ; 12,131 ; 23.7 ; 2. Birmingham, 483,526 ; 9774 ; 20.2. Leeds, 375,540 ; 7404 ; 19.7 ; 8. Dublin, 349,594 ; 10,208 ; 29.2. Sheffield, 329,585 ; 6836 ; 20.7 ; 8. Edinburgh, 264,787 ; 5124 ; 19.4 ; 1. Belfast, 255,922 ; 6940 ; 27.1. Bristol, 223,592 ; 4337 ; 19.4. Bradford, 219,262 ; 3928 ; 17.9 ; 3. Nottingham, 215,395 ; 4023 ; 18.7. Hull, 204,750 ; 4013 ; 19.6. Salford, 201,058 ; 4939 ; 24.6 ; 1. Newcastle, 192,205 ; 3777 ; 19.7 ; 1. Portsmouth, 163,667 ; 3018 ; 18.4. Norwich, 102,736 ; 2049 ; 19.9. Amsterdam, 406,302 ; 8517 ; 21.0. Rotterdam, 203,486 ; 5069 ; 24.9. The Hague, 156,497 ; 3381 ; 21.6. Paris, 2,424,705 ; 53,791 ; 22.2 ; 42. Lyons, 416,029 ; 9236 ; 22.2 ; 10. Marseilles, 406,919 ; 11,567 ; 28.4 ; 52. Bordeaux, 240,582 ; 5639 ; 23.4 ; 284. Nantes, 127,482 ; 2984 ; 23.4 ; 4. Saint-Étienne, 117,875 ; 3087 ; 26.2 ; 28. Havre, 116,369 ; 3931 ; 33.8 ; 5. Rouen, 111,847 ; 3769 ; 33.7 ; 1. Reims, 105,408 ; 2824 ; 26.8 ; 34. Nice, 97,720 ; 2195 ; 22.5 ; 6. Nancy, 87,110 ; 2088 ; 24.0 ; 20. Amiens, 83,654 ; 1912 ; 28.9. Limoges, 72,697 ; 1833 ; 25.2 ; 110. Besançon, 54,636 ; 1307 ; 23.9 ; 2. Berlin, 1,662,237 ; 32,234 ; 19.4. Hamburg, 637,686 ; 25,334 ; 39.7. Leipzig, 375,707 ; 8639 ; 23.0. Munich, 366,000 ; 9644 ; 26.3 ; 2. Breslau, 324,143 ; 8817 ; 27.2 ; 1. Cologne, 290,000 ; 7324 ; 25.3. Dresden, 286,200 ; 6178 ; 21.6. Frankfort, 188,050 ; 3719 ; 19.8. Hanover, 171,148 ; 3593 ; 21.0. Königsberg, 164,996 ; 4092 ; 24.8. Nuremberg, 151,362 ; 3468 ; 22.9. Altona, 148,615 ; 3849 ; 25.9. Chemnitz, 147,863 ; 4357 ; 29.5. Elberfeld, 131,181 ; 2251 ; 17.2. Bremen, 127,993 ; 2487 ; 19.4. Dantzig, 122,091 ; 2759 ; 22.6. Stettin, 121,512 ; 3028 ; 24.9. Barmen, 120,284 ; 2149 ; 17.9. Crefeld, 110,170 ; 2052 ; 18.6. Halle, 107,551 ; 2378 ; 22.1. Aix-la-Chapelle, 105,923 ; 2472 ; 23.3. Brussels, 476,862 ; 9968 ; 20.9 ; 13. Turin, 328,777 ; 7035 ; 21.4 ; 1. Genoa, 197,403 ; 5420 ; 27.5 ; 105. Bucharest, 206,000 ; 6631 ; 32.2. Bombay, 821,764 ; 26,403 ; 32.1 ; 551. Vienna, 1,406,933 ; 34,114 ; 24.2 ; 17. Buda-Pesth, 526,263 ; 14,618 ; 27.7 ; 5. Prague, 347,614 ; 7631 ; 24.0 ; 322. Copenhagen, 326,000 ; 6564 ; 20.1. Stockholm, 248,051 ; 4949 ; 20.0. Christiania, 151,130 ; 3041 ; 20.1. Warsaw, 490,447 ; 13,773 ; 28.1. Odessa, 302,000 ; 7997 ; 26.5 ; 63.

EDITOR'S TABLE.

SANITARIAN, APRIL NUMBER, 1893.

ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.



FATHER MICROBE is ever abroad in search of soil best adapted to the propagation of his species. The above cut represents him as met by THE SANITARIAN'S artist in Brooklyn a week or two ago, near the Union Street crossing of Gowanus Canal. He was brought face to face with an industrious colleague on the opposite side of the canal, just at the time engaged, as many other employés of the privileged class who maintain this nuisance are daily, in sweeping chips and other refuse into the already surcharged cesspool—for nothing less is this misnamed *nidus* of disease germs.

Primarily this filthy cesspool was a creek, draining low, swampy ground of a dozen acres in extent on either side, flowing into Gowanus Bay. In the progress of mercantile enterprise, without regard to the health of the people, it was banked with logs stayed up by piles, and the flats on

both sides were converted into "sunken" ground which, by permission of the city authorities, was made a place of deposit for refuse of all kinds—ashes, tin cans, dead cats and cabbage stocks. Meanwhile sewerage was introduced, and Gowanus Canal was found to be a convenient inlet of one of the largest sewer outlets. No account was taken of the mere rise and fall of the tide in this now dead-end creek, since it was no longer fed by the tributary waters of the banked-out marsh that it previously drained on either side. The result scarcely needs a description—it was an open cesspool of the most aggravated kind. For, besides the sewage that was poured into it, the soakage and decay of the logs staying-up the filthy marsh on one side, and saturated with sewage on the other, compounded a stench so intolerable that it moved the city authorities to have *that* sewer extended to the bay shore. But alas ! like disease germs, both sewage and sewers multiply with population ; and so, too, does commercial enterprise.

With increase of population, manufactories of various kinds, and commerce, Gowanus Canal lots greatly increased in value. The "sunken" ground in the neighborhood was causewayed by new streets, and the intervening squares filled up at public expense. But the stench would not down. It has continued to maintain its ground, and ever will, so long as the privileged class who have profited by the conditions which gave rise to it are permitted to maintain them in defiance of the plainest precepts of sanitary knowledge.

Epidemic diseases are great reformers as well as great destroyers of populous communities. Of this truth Brooklyn should require no new admonition. To the epidemic of yellow-fever on Bay Ridge in 1856 she is indebted for the removal of quarantine from her shore line. Notwithstanding, by the extent of her warehouses and wharves, open to the commerce of the world, she is more liable to the introduction of disease by that means than any other American city. She should tolerate no culture beds for disease germs.

The germ *theory*, which has been a good deal written about heretofore, is now a well-recognized germ *fact*. At least nine tenths of the premature deaths that occur here, as well as elsewhere, are well known to be caused by *disease* germs, called *microbes* because of their microscopic dimensions.

The vicissitudes of the inorganic elements of man's environment, of the atmosphere and all their variations, and besides these, as prime factors, the effects of latitude, elevation, position in regard to mountains, forests, sea-coasts, inland waters, nature of the soil, density of population, the house one lives in, and the neighborhood—all have their bearings upon health, and illustrate man's adaptability, or otherwise, by such effects as serve to make him understand his relation to conditions more or less common to him everywhere. But few of them are subject to his control; the rest, perhaps, to his choice. He cannot prevent the heat of the sun, the moisture of the atmosphere, nor the process of decomposition—conditions in various degrees of intensity sometimes better suited to other organisms than to himself. But he can understand the course and order of natural phenomena, trace out the laws that govern them, ascertain his and other organic beings' relations to them, and the relations of such beings under the same environment to one another.

The reward of his free agency and cosmopolitan nature in this regard is the progress of human welfare, even though won at the cost of impaired health and premature death by those who do most to promote it. But the influence is reciprocal. Man reacts upon nature no less than nature upon him. Indeed, the changes effected in natural phenomena by human agency are the striking characteristics of conditions promotive of or in conflict with human health everywhere. This reciprocal action should, above all things else, make the progressive man alive to the importance of establishing and sustaining his ability to contend against the antagonistic forces, both natural and artificial, with which his sphere of life is everywhere intimately associated, and in nothing more earnestly than against the culture of disease germs.

It may be stated as a general truth that every species of living beings struggles for existence with all other living beings with which it comes in contact. In many instances this struggle amounts to the preying of the smaller species upon the bodies of the larger, wholly depending upon the organism of their host for subsistence and maintenance. Such, for example, is the struggle of parasites generally, both vegetable and animal. Sometimes, at the outset, the host carries but a sin-

gle invader ; but as the discrepancy between its size and that of the invaded organism increases the invader multiplies—by fission—and the greater the difference in the size of the contending beings and the wider they are apart in the degree of their respective organisms, the more desperate is the struggle. If the host cannot dislodge the invaders, or has not the power to resist them, he is in time forced to succumb.

Microbes are of the same nature as parasites, excepting that those of them which are disease germs are all vegetable organisms similar to fungi. They exist in great variety, and are found in the air everywhere except of the ocean at great distance from the land, and mountain summits. They vary in numbers and variety according to condition of locality, season, and climate. They diminish in numbers with the increase of distance from towns and human habitations, and with the increase of elevation from the ground level, and at sea with distance from the shore. They fall in still air, and cling to rough and porous surfaces. They are also washed down to the surface of the earth and water by rain, but are subject to being projected again into the air by the wind or other disturbance, and the more proportional with the dryness of the ground or other surfaces upon which they have settled. They are always present in water, but in it, as in the air, the number greatly varies. They are more numerous in warm water than in cold, and particularly numerous in stagnant water, as they are also in soil, banks of refuse, and putrefying manure. Such places comprise the conditions most promotive of their culture, and the readiest means of their subsequent dissemination.

Foul soil is the chief *nidus* of microbes everywhere. They fall, or are thrown or washed on to the surface, and after being wafted into the air, again return to it. Experiments have demonstrated immense numbers of microbes not only in the accumulations of surface filth in cities, but also on the surface of roads and foot-paths. Animals inoculated with such soil yield a high percentage of cases of disease.

By analogy, at least, it may be presumed that microbes may be wafted by the wind with the same facility as other "dust," or be auspiciously intercepted and provided with stow-away passages by the way, and by such means gain access to new

conservatories, such as the one here in question, however distant they may be from the original habitat.

How much longer Gowanus Canal will be tolerated possibly depends upon wisdom yet to be gained by the public authorities of Brooklyn from the devastating epidemic which it invites.

THE NATIONAL QUARANTINE REGULATIONS recently issued by the Treasury Department under the provisions of the National Quarantine Law (published in our March number) are remarkable for their excellence. The whole "cordon system," as heretofore practised by the Marine Hospital Service, against which THE SANITARIAN has persistently contended, has been ignored, and the regulations deduced from the law very thoroughly adapted to the modern conception of practical sanitation instead.

Every reader of THE SANITARIAN knows that sanitary measures at ports of departure, during the voyage and at ports of arrival, as opposed to reliance upon the detention of persons at ports of arrival beyond a few days over the period of incubation of infectious diseases, and of ships and merchandise longer than necessary for thorough disinfection, have been a constant theme in its pages. Indeed, for more than a dozen years before THE SANITARIAN was established, even as long ago as 1856 and ever since, through the *Merchants' Magazine* and other publications this writer has persistently advocated, and from time to time practised, such sanitary measures in lieu of detention as he now has the gratification to hail the codification of by the Marine Hospital Service, to the benefit of all concerned. And he is all the more gratified because his fears for a different result, as expressed in the March number, have proved so groundless.

With the faithful application of the regulations by all the parties concerned—United States consuls and surgeons of the Marine Hospital Service, in conjunction with the sanitary authorities abroad, merchants and shipmasters, and the health officers at ports of arrival—as contemplated by the law, the danger of importing cholera or any other quarantinable disease is reduced to a minimum. To this end, however, and with the purpose of securing the needful co-operation of all the parties concerned, some, or at least one of the articles would be improved by divesting it of equivocal words:

"Article X.—Rules to be observed on the voyage." No one better than shipmasters understands the importance of mandatory words. Hence the wording of this article, at least, should be wholly devoid of equivocation. All the words we have enclosed in parentheses in the following quotation should, we think, be supplanted by the words immediately following :

"The master of the vessel (should) shall cause the following rules to be observed during the voyage :

"The soiled bodily linen of passengers and crew suffering from infectious disease (should) shall be washed at once, after immersion in boiling water or in a disinfecting solution.

"The water-closets (should) shall be washed and disinfected twice a day.

"An inspection of the vessel, including the steerage (should), shall be made by the ship's physician once each day.

"Should cholera or cholérine, yellow-fever, typhus-fever, small-pox, or plague appear on board a ship while at sea, those who first show symptoms of these diseases (will) shall be immediately sent to the hospital ; the ship's physician (will) shall then immediately notify the captain, and all of the effects liable to convey infection which have been in use (will) shall be destroyed or disinfected.

"The compartments occupied by those who fall sick (should) shall be disinfected"—as soon as practicable after they are vacated—"and, as far as possible, the compartments thus disinfected (should) shall remain freely exposed to the air and unoccupied, and (should) shall not be occupied by any passengers in health for the remainder of the voyage. . . .

". . . After disinfection of the compartments, the bedding and clothing (can) shall promptly be removed and dried.

"Patients in hospitals (should) shall be isolated.

"The hospital (should) shall be disinfected in the manner heretofore prescribed as soon as it becomes vacant.

"The dead (should) shall be enveloped in a sheet saturated," etc.

"A clinical record (should) shall be kept by the ship surgeon of all cases of sickness in hospital, and delivered to the quarantine officer at the port of arrival on demand."

With this modification, the article would surely be much more effective.

LITERARY NOTICES AND NOTES.

HON. WILLIAM P. LETCHWORTH, LL.D.—The recent conferring of the degree of LL.D. upon William P. Letchworth, President of the State Board of Charities, of Portageville, N. Y., by the Board of Regents of the University of the State of New York, is a rare honor, but so eminently creditable to the Board of Regents that every observant citizen can rejoice in it. In the first place, the Regents have conferred that degree but twenty times in the one hundred and ten years of the Board's existence. It is an honor that cannot be conferred without a long preliminary notice of intention, and after a favorable and unanimous report from the examining committee. It is then submitted to the full Board of Regents, and must be granted only by a unanimous vote. Thus it will be seen that this is an honor that is not inconsiderately conferred. Mr. Letchworth has been a State Commissioner of Charities for twenty years, first appointed by Governor Dix in 1873. Recently he has been reappointed for another term of eight years by Governor Flower. His devotion to ameliorating the condition of the poor and the unfortunate, has comprehended a thorough study of and effort to apply the best means used by the foremost ameliorators abroad as well as at home. To this end, a few years ago he spent seven months in visiting and investigating the various kinds of charitable institutions of Europe.

Of Mr. Letchworth and his observations on the "Insane in Foreign Countries," published by G. P. Putnam's Sons, New York, 1889, we had occasion to say at the time (*THE SANITARIAN*, vol. xxii., p. 367): "The author is so extensively and so favorably known for his many years' devotion to the duties of his office that it appears but a natural trend of his mind and intensification of his thoughts to contemplate especially the most pitiful and the most needful of all the subjects of his care, the insane poor. . . . Painfully familiar with all the relations of his subject in the United States, but still realizing a lack of practical knowledge for ameliorating the deplorable condition of the insane poor, he pursued the sub-

ject abroad ; and for the purpose of securing fulness of detail as well as accuracy, his work comprises stenographic notes of visitations and interviews with many distinguished specialists in this field of inquiry ; his aim throughout being to ascertain, from a practical point of view, what are the most advanced, the most humane, and the most economical methods of caring for the insane."

Indeed, the honor is reciprocal ; in honoring Mr. Letchworth, the Board of Regents has honored itself.

LUNACY IN THE STATE OF NEW YORK.—The Third Annual Report of the State Commission in Lunacy for the year 1891, transmitted to the Legislature February 15th, 1892, recently issued, is a volume of six hundred pages.

It is divided into four parts. Part I. deals with the State System in general, reviews the State hospitals, and contains a series of questions and answers covering the general policy of each one, its method of administration, number of employés, purchase and distribution of supplies, statistical details, and the appropriations from the State deemed necessary for the ensuing year. Part II. deals with the Exempted County System, the New York and Kings County Asylums. Part III., Licensed Private Asylums ; and Part IV., the General Asylum System.

The Report is elaborate on all these questions, rehearsing some old propositions, apparently new to the present commission, but still pertinent. The total number of committed and registered insane in the State on October 1st, 1891, was 16,648, an increase of 642 over the preceding year.

The statistical tables show that of 1594 recoveries during the three years 1888-91, but a trifle more than 10 per cent had been insane over eighteen months when admitted. Of the average population of the State hospitals for 1891, 8.6 per cent recovered. Upon the same basis, as shown in the table of duration before admission of those discharged recovered since October 1st, 1888, but a trifle over eight tenths of one per cent of the average population of the State hospitals who have been insane over eighteen months will recover. About 8 per cent of the average population are estimated recoverable cases.

UTICA STATE HOSPITAL, G. Alder Blumer, M.D., Superintendent. Annual report for the year ending September 30th, 1892, reports the number of patients on the roll at the beginning of the year, 778; admitted, 345; discharged, including deaths, 286; remaining at end of the year, 837.

The death-rate has decreased since last year from 12.34 per cent on the average population to 9.86 per cent; or, if estimated on the whole number treated, the difference is between 8.28 per cent and 7.12 per cent in favor of the fiscal year just closed.

MARYLAND HOSPITAL FOR THE INSANE, George H. Rohé, M.D., Superintendent. Annual report for the year ending October 31st, 1892. Number of patients at the beginning of the year, 441; admitted, 60; discharged, including 32 deaths, 74; remaining at end of the year, 427. Appended to this report are four special papers of particular interest to alienists, as follows: "The Relation of Pelvic Disease and Psychical Disturbances in Women," by George H. Rohé, M.D., Superintendent; "Trephining for Insanity," by J. Percy Wade, M.D., Assistant Physician; "A Case Showing the Relation of Kidney Disease to Insanity," by Milton D. Norris, M.D., Clinical Assistant; and "Results Obtained with Sulfonal and Hyoscine in the Treatment of the Insane," by John H. Scally, M.D., Clinical Assistant.

TRANSACTIONS OF THE MEDICAL SOCIETY OF NORTH CAROLINA, 1892, J. M. Hayes, M.D., Oxford, Secretary. A pamphlet of two hundred and forty pages comprises about a dozen reports and papers of interest to medical practitioners, and, besides the proceedings of the conjoint session with the State Board of Health, two or three to sanitarians, one of which—"Our Pine Forests as Factors of Health," by S. S. Satchwell, A.M., M.D.—has been published in these pages, vol. xxix.

The special subjects presented at the joint session with the State Board were Influenza, Consumption, Vital Statistics of the Negro, and Relation of Tuberculosis to Animals, all concisely summed up by the late Secretary, Thomas F. Wood, deceased, with a view to practical measures. The "Remarks

Relative to the State Board of Public Charities and Penal Institutions," by William H. Cobb, Jr., M.D., contain practical suggestions of value to sanitary and other State authorities generally, with special regard to public institutions.

THE MISSION OF PRISON REFORM is particularly well discussed by Samuel J. Barrows in the March *New England Magazine*. "The prison reformer of to-day," he well says, "is not a rose-water sentimentalist. He must be a student of the social and moral problems which enter into the large and difficult subject of crime and its treatment. How complex and mysterious many of these elements are only those who have attempted to grasp them can understand. Indeed, on many of the questions involved in this subject no one can be dogmatic. We must wait for further light and experience. If there be some disadvantage in the contradictions of the criminal codes of the different States and the prison system attached to them, there is some advantage in the fact that different States are making different experiments along different lines concerning the reduction of crime and the treatment of the criminal. If there is a wide diversity of practice in prison administration in the different States, it may be said that prison reformers have come to a general and even warm and positive agreement concerning the fundamental principles of prison reform. These principles may be briefly stated as, first, the protection of society, and, second, the reformation of the prisoner. As to how these principles are to be applied and these ends attained, prison authorities differ; but that these are the ends to be worked for, they earnestly agree."

OBITUARY.

DR. EDWARD HOUGHTON JANES, Assistant Sanitary Superintendent of the Health Department of New York, died at his home, 57 West Ninety-fifth Street, March 12th, of heart disease. He had been connected with the Health Department ever since the organization of the Metropolitan Board of Health, under the spur of cholera, in 1866. Indeed, even be-

fore that organization Dr. Janes was an active sanitarian and one of the foremost enlighteners of the Citizens' Association, with which association he co-operated in devising the Metropolitan Board that, at the outset, chose him as one of the most accomplished inspectors. Although seventy-three years old, he was actively engaged in his duties almost up to the time of his death. He complained of feeling ill about ten days before his death, and remained at home for a few days. On Wednesday he resumed his duties. He appeared to be weak when leaving the office, and a clerk noticed him take a document from his desk and put it in his pocket. The document afterward proved to be his will. He was confined to his bed the next day, and on the following morning he died. Dr. Janes was descended from sturdy New England stock. His ancestors came from Essex, England, in 1637, and settled in Northfield, Mass. Dr. Janes studied medicine at Hope, N. J., and was afterward graduated from the Berkshire Medical Institute. In 1857 he took up his home and began to practise in this city. In 1860 he married Miss Jane M. Yates. In 1872 Dr. Janes succeeded Dr. Moreau Morris as City Sanitary Inspector, and he held the office until the year following, when the department was reorganized, and he became Assistant Sanitary Superintendent, which office he held up to the time of his death. For ten years Dr. Janes supervised the hospitals of the Health Department, and it was he who organized the Riverside Hospital, on Blackwell's Island, now on North Brothers' Island. He occupied the chair of hygiene in the Woman's Medical College for seventeen years. He was Secretary of the Academy of Medicine for several successive terms, and was one of the organizers of the American Public Health Association. He was also a life member of the New York Historical Society, honorary member of the New Jersey Historical Society, a director in the Oratorio Society, and one of the Board of Managers of the Society for Improving the Condition of the Poor. He was an accomplished musician. He leaves a widow and two sons, Edward F., a paymaster in the Pacific Mail Steamship service, and Elisha H., a business man, and one daughter, Martha R. Janes. The funeral took place March 14th at 2 P.M.

THE PAN-AMERICAN MEDICAL CONGRESS.

SEPTEMBER 5TH-8TH, 1893.

SECTION ON HYGIENE, CLIMATOLOGY AND DEMOGRAPHY.

Executive President.—Medical Director Albert L. Gihon, M.D., U. S. Navy.

Secretaries.—Dr. Peter H. Bryce (English-speaking), Toronto, Canada ; Dr. Pedro José Salicrup (Spanish-speaking), 129 East Seventeenth Street, New York City.

Persons proposing to present papers before this Section are requested to communicate with either of the undersigned *immediately*, that titles of subjects may be properly classified for the programme of the proceedings of the Congress. The only limitation as to subject-matter is that it shall have a sanitary, climatological, or statistical bearing. The authorized languages of the Congress being Spanish, Portuguese, French, and English, papers may be presented in either, to be translated in the others, for which reason their text should be in the hands of the secretaries at the earliest possible date.

ALBERT L. GIHON, M.D., *President*,

145 East Twenty-first Street, New York City.

PETER H. BRYCE, M.D., *Secretary* (English),

Toronto, Ontario, Canada.

PEDRO JOSÉ SALICRUP, M.D., *Secretary* (Spanish),

129 East Seventeenth Street, New York City.

SECTION ON MARINE HYGIENE AND QUARANTINE.

Executive President.—Dr. Walter Wyman, Surgeon-General U. S. Marine Hospital Service, Washington, D. C.

Secretaries.—Dr. S. T. Armstrong (English-speaking), 166 West Fifty-fourth Street, New York City ; Dr. D. M. Guitéras (Spanish-speaking), U. S. Marine Hospital Service, Washington, D. C.

SECTION OF MILITARY MEDICINE AND SURGERY.

Executive President.—George M. Sternberg, Deputy Surgeon-General, U. S. A.

The following gentlemen have been duly appointed members of the Advisory Council of this Section :

Colonel Louis Read, M.D., Surgeon-General, N. G., Pa. ; Newton L. Bates, M.D., Medical Director, U. S. N. ; J. R. Tryon, M.D., Medical Inspector, U. S. N. ; Lieutenant-Colonel Eustathius Chancellor, M.D., Medical Director, N. G., Mo. ; Brevet Lieutenant-Colonel A. A. Woodhull, M.D., Surgeon, U. S. A. ; Major Joseph H. Corson, M.D., Surgeon, U. S. A. ; Major George Henderson, M.D., Medical Director, N. G., D. C. ; C. N. Hoagland, M.D., ex-Surgeon, Ohio Vols. ; Bedford Brown, M.D., ex-Surgeon, C. S. A. ; H. C. Goodman, M.D., ex-Surgeon, U. S. Vols. ; Melancthon Storrs, M.D., ex-Surgeon, Conn. Vols. ; O. D. Ball, M.D., Pension ex-Surgeon, Albany, N. Y. ; Captain H. O. Perley, M.D., Assistant Surgeon, U. S. A.

SECTION ON THERAPEUTICS OF THE PAN-AMERICAN MEDICAL CONGRESS.

Executive President.—Hobart Amory Hare, M.D., Philadelphia, Pa.

Gentlemen who desire to read papers at this meeting should notify the President at once of their intention, and should send him by July 10, at the latest, an abstract of their paper, in order that it may be translated into the three official languages of the Congress and published in the programme. The importance of this section and the interesting papers which have already been promised give assurance of a very successful meeting.

THE NEW YORK STATE BOARD OF WOMEN MANAGERS OF THE WORLD'S COLUMBIAN EXPOSITION.

UPON the presentation of the subject by Mrs. J. S. T. Stranahan, Second Vice-President, acting upon the suggestion of Mrs. Potter Palmer, President of the Board of Lady Managers of the World's Columbian Commission, she was authorized to contract with Miss Juliet Corson, as the first American organizer of cooking schools and diet kitchens, to take charge

of New York's exhibit of cooking schools at the Exposition. Miss Corson accepted the honor.

All minor details of the organization and management were placed under Miss Corson's control, together with the entire charge of the exhibit.

Miss Corson is the highest authority in America on sanitary cookery. Her direction of this department should be a sure guarantee of its success.

As there is no fund provided for this cooking-school exhibit, Miss Corson relies upon the liberality of manufacturers to supply her and her staff with ample funds, as well as with abundance of their finest products, in order to maintain the exhibit at the highest point of excellence. The expense will necessarily be immense to keep all parts of the exhibit at its best. It was at first feared that the usefulness of the exhibit might be hampered by the lack of funds, but some of our leading manufacturers pledged their hearty support, N. K. Fairbank & Company, through the American Cotton Oil Company, sending Miss Corson their check for \$500, and the American Meter Company opening a special fund, which will reach a large amount. But to manufacturers of food products and household utensils this opportunity will be invaluable for placing their goods before the public, especially before visitors to the Exposition from all parts of the world.

The exhibit is open to every article or substance used by housekeepers, or suitable for their use, such as choice preparations of food, specialties for the use of invalids and children, household utensils and fittings, labor-saving devices, and all matters of use and value to housekeepers, including publications on household science and domestic economy in all their branches, sanitation and sanitary dietetics, all matters appertaining to women's household labors and the care of the family in health and illness.

All such articles should be placed at Miss Corson's disposal without further delay, in order that their display may be properly considered. Correspondence should be addressed to Miss Corson at the office of the New York State Board of Women Managers of the World's Columbian Exposition, 1122 Broadway, New York City.

THE SANITARIAN.

MAY, 1893.

NUMBER 282.

THE CROTON VALLEY WATER-SHED AND ITS SPONSORS.

AN evening paper, under the heading of "Quack Legislation," instead of dealing with individual legislators, as it might have done to some purpose, is needlessly severe upon the Academy of Medicine, "as having so long neglected their plain duty in reference to the sanitary condition of the Croton basin," and adds: "Under a cholera panic there may be a show of cleaning the town, but the efficient means of saving health are not the product of panic, but of constant and wise measures" (see SANITARIAN, vols. xvi., xxi., xxii., xxviii., on Pollution of Croton Water).

If ever THE SANITARIAN was justified in straying a little from the plain paths of scientific criticism into a broader field of comment upon men and measures, the passage of the Webster Bill by the Legislature gives the occasion. The Academy of Medicine cannot be held accountable for the condition of the Croton basin or the delay in instituting measures for its improvement. The city officials having this in charge, if they are competent now to conduct the crusade just commenced against local nuisances under the Webster Bill, they should have been acquainted with its growing pollution for years past, and were as competent to prevent the increase of the same under previously existing State laws! Some one has wisely said "that an ounce of prevention was worth a pound of cure." The Croton basin would have been a good field to apply the prescription; but failing its early exhibition, it remains to be seen whether the pound of cure can be honestly administered now.

The reader will judge how far this is likely to be the case when he takes a look at the environment and the significance to be attached to political bossism. A machine, composed largely of the lowest element in party politics, has long enveloped, like a huge octopus, the government of the city of New York, and holds everything in its grasp. A few years since it was concluded that the sheriff, always loyal, was sufficiently imbued with the true principles of city government to be intrusted with its management, and he was accordingly elected mayor. Now, while a sheriff may possess personal qualities which fit him for a higher position, it by no means follows that his underlings become thereby equally fitted for greater responsibility ! But our mayor thought otherwise, and forthwith elevated his whilom clerk to the position of Commissioner of Public Works, an office of great responsibility, distributing large patronage, wielding great powers, and holding the comfort and health of a populous city in his hands, as it were.

Time rolls on. A fear of cholera seizes the citizens. The pear was not quite ripe, and no movement was inaugurated to stave off the threatened pestilence. The patronage in the meanwhile was so well distributed that the sheriff's clerk saw a vision of greatness before him, resulting in his nomination and election as mayor. True to his party instincts, he had not far to look for a successor to himself in his late office. Who so well qualified for so important a place as one of his own clerks, who owed him true allegiance(?) ; and accordingly we find the late sheriff's clerk's clerk now reigning in his stead as Commissioner of Public Works. This reference to the official pedigree of the present commissioner is made in no disparagement of his respectability, but simply to call attention to the school in which he was trained, and the unlikelihood that sanitary engineering had formed any part of his tuition.

The pear was now ripe ; and what the actual presence of the cholera in the city failed to accomplish the last season, the suggestion of its *possible* visitation this was considered as presenting the desired opening, and our new mayor drew up a bill for the machine legislature, which, while pointing in one direction to meet a public want, was really only efficacious in

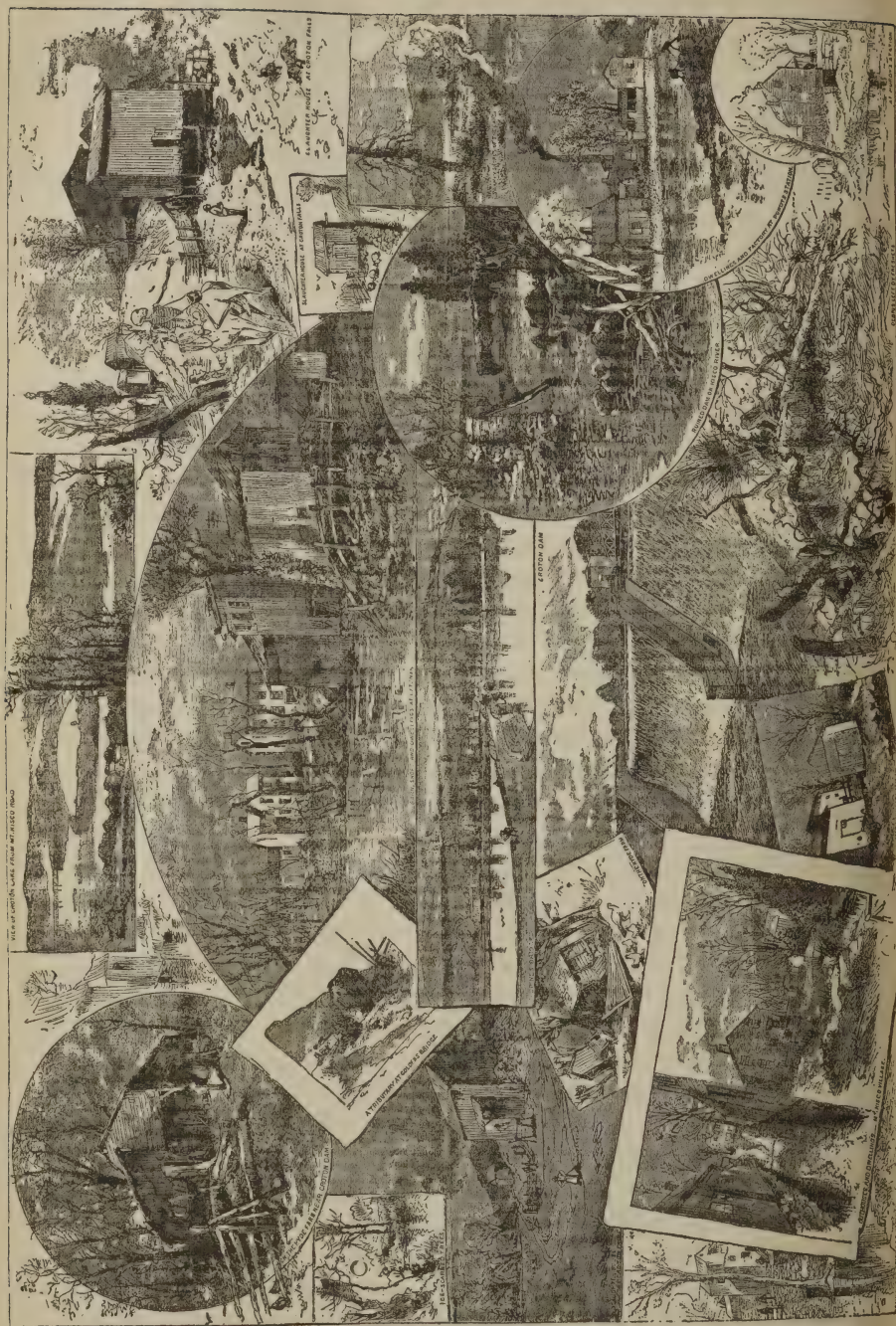
the direction of a party purpose. This was the Webster Bill, which conferred autocratic powers on his late clerk to sweep from the Croton basin, with the torch if necessary, and without the possibility of appeal, all or anything which in his matured judgment could threaten the health of the city—the latter to pay all bills ! This Webster Bill the committee of the Academy of Medicine shows to be but a premium on nuisances for the benefit of whom it may concern, but was signed by the Governor, who at the same time acknowledged its inefficiency. Concerning the Webster Act the committee of the Academy of Medicine says :

“ It will be seen that this act gives enormous power to a single man—a part of which power is legislative ; that it does not give power to make and enforce sanitary regulations ; that it does not require the adoption of a plan for sewage disposal devised or approved by sanitary experts and engineers ; that, although it gives authority to abate nuisances, it does not forbid the creation of nuisances, except the city buys the land upon which they may be established.”

And that the public good was not the paramount object of this bill is seen in the objection of the Mayor to any amendments offered by the Academy of Medicine, however unobjectionable to him otherwise, unless his creature, the Commissioner of Public Works, was allowed to retain his autocratic powers.

Clothed with all power, the Commissioner of Public Works has commenced his raid on the city treasury, under the guise of remunerating individuals for property taken for public use. The Webster Bill gives him, in addition to the summary power of disposing of such nuisances as meets the eye, the right to acquire such real estate bordering the tributaries of the Croton River as *he* thinks necessary to prevent further pollution of the stream. It is stated that 250 feet is the width of this strip of land, but whether this is a maximum does not appear.

The water-shed of the Croton covers some 232,000 acres. It has some 5000 dwelling-houses, about half in the villages ; as many outhouses, the larger part on the farm lands ; some 33,000 animals, of which near 20,000 are cattle and horses, and a population of 25,000 human beings, of which we may suppose 500 die yearly ; room is found for such on the drain-



VIEW OF THE MILL, FROM THE WEST

VIEW OF THE MILL, FROM THE EAST

VIEW OF THE MILL, FROM THE SOUTH

VIEW OF THE MILL, FROM THE NORTH

VIEW OF THE MILL, FROM THE WEST

VIEW OF THE MILL, FROM THE EAST

VIEW OF THE MILL, FROM THE SOUTH

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VIEW OF THE MILL, FROM THE SOUTH

VIEW OF THE MILL, FROM THE NORTH

age area in graveyards wherein their predecessors lie. The palpable nuisances which the eyes and nose of the commissioner reveal to him he can do no less than remove. Cess-pools and privy vaults, some open, others closed, but none of them tight, abound near settlements of course ; the piggeries, while not always seen, are recognizable at some distance ; the barns, with rotting manure heaps around them, are sufficiently conspicuous ; so are the slaughter-houses, factories of various kinds on a small scale, but all of these contribute their share of liquid waste, and have done so for years to the ground-water and ultimately to the streams.

The commissioner breaks up the present locality of some of these offensive matters, it is true, but he has not thereby diminished the amount of putrescible material which will be engendered in the future, nor provided any means whereby the increasing wastes from animal life shall be rendered less poisonous to the subsoil than at present. The mere possession by the city of the strip of land bordering the streams, if indeed such acquisition were possible, would not of itself, in the open soil of the basin, do more than temporarily retard the seepage of the liquid filth in its passage to the lower level of the streams. It would appear, indeed, that the commissioner himself has a very restricted idea of what constitutes the water-shed of the basin, as shown in his answer to a widow woman who asked him "where she should move her manure heap," then draining into Kensico Lake, and which he had ordered to be removed ; his answer was, "Outside the water-shed." This would require its cartage for several miles, which was not his intention by any means, but that there should be an intervening elevation or space of ground between the manure and the lake, which would have placed it, in his opinion, outside of the water-shed, regardless of any underground drainage which the open character of the soil may have favored. That the commissioner's idea of the extent of the water-shed that he has undertaken to cleanse requires some little enlargement is shown in a report this morning (April 12th) to the effect that he has instituted a patrol of fifty men "*to patrol the entire district bordering on the water-shed.*" At \$2 per day per man he estimates this at \$36,500 a year, but adds, "that if one hundred men were employed, New York

would secure cheap immunity from either a cholera or typhus-fever epidemic."

The above is sufficient evidence that the commissioner has a very imperfect idea of the magnitude of the work he has undertaken. He does not even understand the proper meaning of the term he so often uses of "water-shed;" it really embraces something beyond and out of sight of the running streams. It includes the towns, villages, and settlements which are all *on* the water-shed, and which must pour their refuse into the Croton as their natural drainage outlet; it can go nowhere else; and the fact may as well be recognized first as last, that nothing but a systematic plan, well studied in all its bearings, for rendering the sewage of these places as little harmful as possible to the waters of the Croton, will prove of any benefit to the water supply of the city. A patrol of neither fifty nor five hundred men would prove of any real service toward guarding the city against cholera invasion, as the commissioner innocently imagines it would. According to modern science, no amount of filth, however concentrated, will of itself *generate* a cholera or typhoid-fever germ, but like a powder magazine, such material stored waits a single spark from without, when the whole bursts into a flame and an explosion follows. This is not, it is true, a rationale of the process of disease propagation, but it serves as an illustration of the effect of storing filth on or near the tributaries of a stream used for domestic purposes. The great dilution resulting from the volume of the rainfall on the Croton basin will ordinarily, as it has heretofore, render the water *comparatively* harmless for use, notwithstanding the analysis of the chemists reveals the presence of nitrates and nitrites and chlorine, which are supposed to indicate previous sewage contamination. The use of such impure waters tends to lower the tone of the human system, and bowel derangements prevail more or less, and the system is rendered susceptible to the attack of specific disease when the *germ of that disease shall make its appearance*, of which we know but little, after which no amount of *mere* dilution appears to mitigate its ravages. The obvious warning to be derived from this is, that while the analysis of the chemist has a certain value in one direction not to be disregarded with impunity, it is helpless in the pres-

ence of disease germs. It has no test by which their presence can be detected. We know they thrive and multiply in filthy surroundings, and to be on the side of safety we should guard all sources of domestic and public water supply from the *possibility* of contamination by the dejections of the sick and by excremental matters generally. We shall probably be favored shortly with some chemical analyses of the Croton water ; and as the prevalence of rainy weather lately has served more or less as a dilutant to the liquids which reach the streams, a favorable report will doubtless reach the public, attributing the improvement to the efficacious patrolling of the "district bordering on the water-shed."

I am reminded of the anecdote of the Irishman when he first saw the steam excavator, which threatened to lessen the demand for his native shovels. After witnessing its operation awhile, he turned away with a satisfied air, with the remark, "Aye, but you can't vote !" The application of this must be reversed in the present case. If the water-shed is filled with patrolmen who yet fail to prevent the advent of cholera, the comforting reflection remains that they *can* vote.

Cholera might at this moment be present in New York City, and under proper treatment might die out without doing much mischief ; but let the dejecta of a single travelling cholera subject be introduced into any of the sources of the Croton River, the water as a disease germ *feeder*, being as the history of its present condition indicates, and nothing short of a miracle could prevent an epidemic of the disease in the city. And what is our commissioner doing toward warding off such a calamity ? Is he examining the neighborhood of the settlements for the establishment of small sewage farms ? or ground either for irrigation works, or intermittent filtration, or even treatment of sewage on so small a scale as precipitation ? These methods admit of ready application on the Croton basis, are comparatively inexpensive to carry out, have been shown to be efficacious where profit was not looked for, but where the people were willing to pay for the luxury of health and cleanliness.—J. W. ADAMS.

SOME SANITARY ATTRACTIONS OF BROOKLYN.

“ ETERNAL VIGILANCE IS THE PRICE OF HEALTH,” AND SO,
TOO, OF THE TURKISH BATH.

By E. C. ANGELL, M.D., Tarrytown, N. Y.

BROOKLYN is said to be a city of churches and a city of homes. As compared with the Empire City, on the other side of the river, it has proportionally more breathing space and more trees to absorb noxious gases, and hence a better atmosphere. The favored few who morning and evening can take the time for a “ walk over ” the bridge derive a peculiar advantage from a residence in Brooklyn. This walk in air that sweeps from Sandy Hook to the Sound, above noxious inhalations, pumps into a man an abundant supply of that vitalizing element, oxygen, that fits him for the counting-house, the law office, the stock exchange, or any place requiring a “ level head ” or “ a sound mind in a sound body.” The return in the evening over the same ozonic path is not less satisfying than salutary. The walker reaches home refreshed, invigorated, and ready for dinner, and can say, like Macbeth, “ Now, good digestion, wait on appetite, and health on both.” Many of those packed in cars come home dull and jaded, without ambition or appetite. They dine mechanically, and soon become oblivious to everything but bad dreams or disturbed sleep.

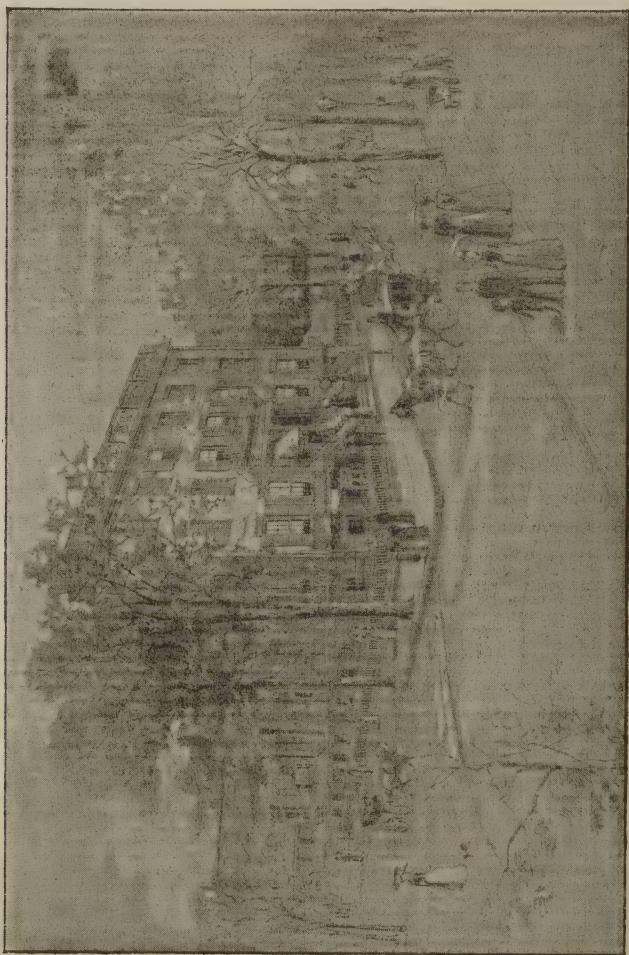
From the kindergarten to the academy and the college, Brooklyn has the foundation of a very complete system of education. She can justly point with pride to her grammar schools, her high school for boys and her high school for girls. In the domain of private instruction, which leads up to higher education and stimulates ambition to the highest achievements, may be ranked her Adelphi Academy, Packer and Pratt institutes, Polytechnic College, and her far-reaching Institute of Arts and Sciences ; the Long Island Historical Society, with its educational museum and library ; the Brooklyn Library,

with 120,000 volumes and upward of 300 periodicals of current literature ; her Medical College—the first of its kind—the Long Island College Hospital, which, in conjunction with the Hoagland Laboratory, ranks among the foremost medical colleges in the country for its admirable facilities for students.

Brooklyn also enjoys the unique distinction of having furnished the first American home for Turkish bathing. For this far-reaching benefaction she is indebted to her "Good Shepard," who has been an educator, perhaps in no sense inferior to the medical college. While it does not win as much *éclat* to prevent or remove disease as to remove an arm or leg, it nevertheless confers greater benefit. When Turkish baths were first introduced, there were comparatively few who had the courage to venture upon what seemed so hazardous an undertaking. This is changed, and now a single day brings to this luxury of cleanliness and health not hundreds merely, but thousands. From this small beginning, in 1863, Turkish baths have risen steadily in the north, in the south, in the east, and in the west, until it is hard to find an American city that has not one or more of these most efficient means of restoration and sanitation. These baths have already found their way to many private and to some public hospitals ; and when we consider how essentially important they are to the hospital, we marvel at their slowness in finding their proper place. They are as certain to come to the hospital some day as effect is certain to follow cause ; and when they do come, "they will come to stay."

Whether regarded as a prophylactic or a therapeutic, dry hot air, in the estimation of the most intelligent and progressive of the medical profession, holds pre-eminent rank. Nothing else can take its place, nothing else can do its work. The average physician, however, would consign these baths to Hades, without church or clergy. They trench on his domain, and he invents all sorts of reasons for their condemnation. You will hear him say they are too dry, they are too hot, they debilitate, they deplete, they enervate, they weaken. Properly constructed and properly conducted, this is the exact opposite of the facts. It is true that to some extent they stand in the way of pills and powders, of tablets and tinctures, as they largely diminish the necessity of medication.

Dr. Shepard has wisely, for the public, if not for his pocket, placed the luxury of being clean "externally, internally if not eternally" within the reach of all who appreciate this means of mental, moral, and physical regeneration. His baths are so



DR. CHAS. H. SHEPARD'S SANITARIUM.

excellent and so moderate in cost that they practically disarm criticism, as it seems ungracious as well as ungenerous to scrutinize too closely so great a benefaction. The wonder is that he can do so much while he receives so little. No one can doubt that he pre-eminently deserves the full measure of

success with which his contributions to health have been so signally crowned. Few medical men achieve enough or live long enough to enable them to trace such stupendous results as have come from his own initial efforts, and the end is not yet. Greater successes are yet in reservation, when dry hot air baths are better appreciated, better constructed, better conducted, and better compensated—in brief, when sanitary knowledge shall become so universal that the average physician may wisely sit in judgment over the best means of promoting the health of his patients.

Many of the ills we encounter during the fall, winter, and spring come from colds. Nor are the summer months by any means wholly exempt. The highest medical authorities unite in the fact that the timely use of dry hot air is the remedy *par excellence* for acute colds. So numerous are the ills resulting from the neglect of colds that they may be said to be the mother of maladies. Indeed, they are often the first signals that herald the approach of many of the most fatal diseases. They are warnings of such gravity that they should never be neglected. Many cases of bronchitis, grip, pleurisy, pneumonia, and even consumption have been prevented by timely recourse to hot air and its accessories—a remedy at once as agreeable as it is beneficial and efficacious.

The New York *Herald* of March 12th records the fact that five members of the Seventh Regiment of New York had died from colds within one week after participating in the inauguration at Washington. This regiment is made up of athletic, carefully selected men, who are unsurpassed in courage or endurance. This occasion in Washington seemed exceptional in fatality, and its long death roll serves to emphasize with singular force the importance of timely attention to colds. Recourse should be had to dry hot air at the first onset until profuse perspiration has been fully established. Massage or shampooing should follow, and this should be succeeded by the tempered douche, spray, or shower warm enough not to chill, yet cool enough for safety without shock, and just sufficient in amount to remove the exuviae which sweating and shampooing has brought to the surface. As a further safeguard from after exposure, and that the bather may go forth fully invigorated, refreshed, and protected, he

should now receive the restored luxury of the Cæsare, the "Roman bath," which Dr. Alger called the quintessence of luxury, and Dr. Sayre pronounced a better protection against cold than an overcoat. The bather should be instructed to fast or to live lightly and exclusively on fruits until all traces of the obstructing influences of the cold have been dispelled.

If a single visit is not enough to effect this result, these baths should be followed up daily, or still better, morning and evening, until a return to complete health has become an accomplished fact. If the cold has been neglected, and several days have elapsed since its inception, then these baths should be taken morning and evening, and the same directions as regards diet should be followed undeviatingly.

The lingering illness and melancholy death of Mrs. Harrison, who honored the White House with such ability and grace, and whose unostentatious charities and domestic devotion made her a model and type of American womanhood, began with a cold. By timely recourse to dry hot air, followed by a Roman bath, this cold could have been dissipated by a single visit, and the husband and family and myriads of sympathizing friends would have been spared the blight of desolation which came from her untimely death. The history of her case, the energy and vigor with which she battled with disease, and the tenacity with which she clung to life are conclusive evidence of this truth.

Timely prevention is better than all the cures that the most learned of the medical profession have yet been able to discover.

Many of the colds we encounter are excited by errors in beverages, the improper use of food, and errors in cooking. Errors in eating are largely responsible for errors in drinking. The most careful search will rarely find a man who does not eat too fast. It is equally difficult to find one who does not eat too much, or one who does not eat too often, too many kinds of food or improperly prepared food. It is perhaps equally hard to find one who does not use too many condiments or too much sugar. The latter Victor Hugo declared to be the most desiccating of all salts. The tendency of both is to produce unnatural thirst.

Show me the man who avoids errors in beverages and diet and who does not use tobacco, and I will show you a model of health and strength—a model of mental and physical vigor. Such examples are possible, but they are as rare as angels' visits. What are the consequences of these errors? The unnatural use of beverages and food produce derangement and impairment of every function. Hydra-headed manifestations of these abnormal conditions are so common that we have come to be known as a nation of dyspeptics. We must reform our use of beverages and food, or we shall be known as a nation of drunkards.

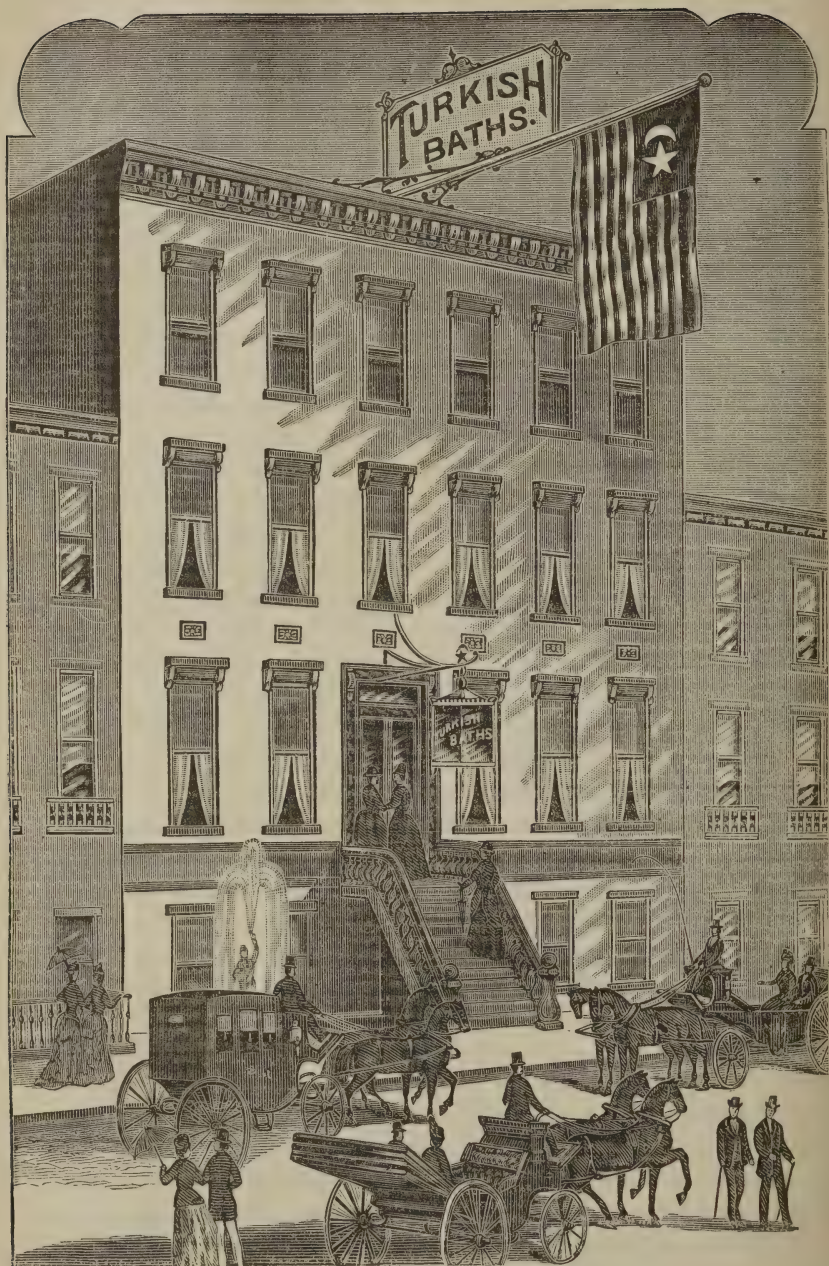
Errors in diet not only produce unnatural hunger, but unnatural thirst. This makes the coffee house, the soda fountain, the saloon, and the gin palace so many bonanzas for their owners. Dry hot air and its accessories are the best and most speedy means of bringing the drunkard to a state of sobriety, and these measures are especially efficacious in assisting those who are combating the opium and tobacco habits.

The establishment of Turkish baths by Dr. Shepard led other aspirants for fame and fortune to enter this field of sanitation. Avon C. Burnham, who had been a successful gymnast, erected, at great cost, a very attractive bathing establishment, connected with a well-appointed and capacious gymnasium, in Smith Street, near Fulton.

Burnham's baths were in some measure modelled after the Hammam, in Jermyn Street, London. Some objection was made to this establishment, that bathers in Brooklyn did not find the privacy here to which they had generally been accustomed. For this and some other cause or causes the whole scheme was abandoned, and the building is now utilized for other purposes.

This undertaking was followed by a large swimming bath in Fulton Street, near the City Hall, which for a time promised to be a stupendous success. For some reason, notwithstanding the great cost of construction, it was comparatively short-lived.

Aside from the pioneer baths of which so much has been said, there are at this time three bathing establishments in Brooklyn. One is situated in Jay Street, near Fulton. This is, I think, the only bathing establishment I have not seen in Brooklyn.



FRONT OF BUILDING.

There is a rather attractive bathing establishment in Lee Avenue, corner of Taylor Street. A corner house affords advantages in light and ventilation not possible in the middle of a block. The opportunities here seem to have been well utilized. The plunge or swimming pool is the more attractive from being well lighted, and from a supply of artesian water rich in marine shades.

But the most elaborate undertaking in balneotherapy in Brooklyn is situated in Clinton Street, near Fulton. For this establishment Brooklyn is indebted to the enterprise of Dr. A. L. Wood, who was many years one of the trinity that established the pioneer Turkish baths in the city of New York. The hot chambers of these baths are of higher temperature than the other baths in Brooklyn, and hence have greater possibilities. At this time this establishment surpasses in temperature any baths in the city of New York.

The four most costly and palatial bathing establishments in the Empire City have no place for women. They are for the lords of creation exclusively.

The baths of Dr. Wood and those of Dr. Shepard, in Brooklyn, are not so restricted. They have each a separate department exclusively for women, open at all hours when baths are wanted. From indoor life, want of air, exercise, light, and sunshine, women are more in need of these baths than their fathers, their brothers, their husbands and sons.

In New York, in Boston, in Chicago, in Milwaukee, in Denver, in San Francisco, and in many other of our cities Turkish baths have become a part of hotel equipment. This is a matter of hotel wisdom. The traveller who has been cramped, confined, and often nearly suffocated by bad air from want of car or ship ventilation is sadly in need of the best and most speedy means of restoration. The more comfortable he is made at his hotel the longer he will remain and the oftener he will return.

I venture the prediction that the time is not far remote when the best bathing facilities will become more essential to hotel success than the bar-room. It is simply what the traveller needs and what the traveller wants. The more he knows of the benefits of dry hot air the more imperative will be his demand. The more he knows of the destructive and poison-

ous concoctions of the bar-room the less of its beverages he will want. The intelligent traveller, other things being equal, will seek the hotel having the best bathing facilities. From the facts herewith presented it is apparent that the easiest way for the Empire City to obtain sanitary supremacy would be to annex Brooklyn.

SOME SANITARY INCONSISTENCIES.—One of the curious vagaries of modern sanitary progress is that the community has begun to look after the purity of its milk and water with so much more zeal than it does after its beer and spirits. The Massachusetts State Board of Health, for example, has spent a great deal of money and expert labor in examining spring water, rivers, and cow-yards. Chicago has even established a "Department of Milk," with a chemist at \$3000 a year, and nine inspectors at \$1000 a year. Their business will be to watch every place in which milk is on sale. It would be a low estimate to suppose that the country spends a million a year prying into its milk and water.

In this and every other city or town, however, saloon-keepers are allowed to sell freshly made whiskey retailed at forty cents a quart, also stale or unripe beer and other alcoholic liquors which may contain as much fusel oil, yeast, and cheap bitters as the dealer's conscience chooses. There is not much doubt that alcoholic drinks kill and injure vastly more persons than do milk and water. It is equally certain that some of the harm thus done could be prevented by the enforcement of laws forbidding the sale of impure alcoholic drinks. There has got to be almost a panicky feeling among sensitive people in regard to drinking water. Probably most of these quiet their nerves by boiling their Croton or drinking bottled waters. Others perhaps make the danger lurking in water an excuse for drinking bad wine or poorly made beer—and that means nearly all American beer. We need to inculcate a juster sense of proportion among our sanitary advisers and our law-makers.—*Medical Record*, February 4th, 1893.

DAYLIGHT IN THE DWELLING-HOUSE.

By Mr. JOHN BRETT, A.R.A., read before the Architectural Association, London, December 2d, 1892.

IT has been said by some modern philosopher (a German, I think) that it is not necessary to be an architect in order to live in a house, intending thus to set forth that a given theory may be a good and useful framework for your ideas although you did not yourself invent or develop it.

The Committee of your Association seem to countenance a variation of this aphorism by inviting a painter to read a paper to you this evening.. They do not thereby imply that a painter can be an authority on architecture, but that he may perhaps know one or two things about the lighting of a house that are not usually learned in architects' offices, but which yet may have some practical importance.

You architects lay yourselves out to be serviceable to all sorts and conditions of men—you build for "the butcher, the baker, and the candlestick-maker," and you have it in your power to make their lives pleasant and their home a "desired haven," or, on the other hand, to fill that refuge with "wailing and gnashing of teeth." No other profession in the world has such control over the destinies of men in general, but specially of painters, so I feel sure you will good-naturedly consider their wants before you put in your windows.

We shall all readily admit that the first requisite for a dwelling-house in this climate is that it should keep out the weather; and I think it can easily be shown that the next essential quality is that it should let in the daylight (when there is any). Like most things, the letting in of the daylight may be well done or badly done, and there are more ways of doing it badly than well, so that if left to chance it is likely to prove a failure.

I propose to explain, in the first place, what good lighting means, and how the windows should be placed so as to enable you to see things well inside the house. My next endeavor

will be to show how the daylight, having been admitted, can be economized and utilized by reflection, and that the artistic treatment of the interior largely depends upon reflected light and upon the quality of the reflecting surfaces.

You can have a very comfortable life in a tent. A tent, indeed, has charms for enterprising men second only to those of a ship—the ideal home of the Englishman, whose estate covers the whole surface of the sea. A tent can be quite comfortable and safe even in howling gales of wind or drifts of snow, and a considerable portion of mankind for generations have found tents quite good enough for common purposes—to eat, to sleep, and to die in. But civilized man has a want which a tent cannot supply—viz., a place for the exhibition of his treasures, especially the treasures of beauty, for which stability, permanence, and good daylight are wanted. He also requires a base of operations for his enterprises, a museum for his archives and trophies, and, above all, for the convenient arrangement of his intellectual resources—for his books and his pictures. He may also require means for the entertainment of his neighbors and his children, and for seeing them to the best advantage.

If you can admit that a painter knows anything, you may be sure he knows how to light a picture so that its merits may be well seen, and I think it will not be difficult to convince you that the lighting of pictures is an excellent criterion of the lighting of the house—indeed, a very crucial test of it; but it is evident from our daily experience that many architects have never heard of such a principle and will exclaim with certain disciples of old, “This is an hard saying. Who can hear it?”

Now, it is not practicable to build for a single individual; you must build also for his guests and for the public. Your client may be the most ignorant vestryman in the three kingdoms, but he will not owe you any thanks if you work down to his own personal level. Even if he devotes his whole life, say, to the choosing of bacon and cheese, he will still like to leave behind him when he dies such a house as shall have the approval of the more cultivated men of his day. Therefore you must provide for the housing of works of art, although they are not mentioned in the specification. When you have done your best the house is sure to have defects. Some of

these will probably carry with them compensating advantages, and some can easily be lived down by a philosophical tenant ; but defective lighting you will find very difficult to deal with, and in most cases incurable.

Daylight is more or less necessary for our physical health, for cleanliness, for the preservation of our possessions from damp, from mildew and other enemies ; but it is indispensable for the seeing of beauty. A large quantity of daylight is not the chief consideration. A glass house or a lantern is eminently unfit for a human dwelling, since snugness is a most desirable quality, and for your banquets artificial light is better than natural daylight, as I will explain later on.

The most common form of beauty harbored in houses consists of pictures. I use the word pictures in a broad sense, comprising all such beautiful things as can be shown on the walls. I do not refer to the great art of sculpture, because that is considered by many of us as an essential part of architecture. It is well known that in the great period of Greek history the pictorial art flourished, and in the fourth century B.C. what we call easel pictures formed a considerable item in the wealth of Athens. These pictures were mostly carried off by the Romans, many of them changing hands at incredibly long prices. The competition among collectors was as brisk then as at any time in the Victorian era. This taste, therefore, is no mere modern fashion, and in our own day it may be said to be universal, so that it would hardly be possible to find a poor cottage, even in remote parts of Wales, where there are no pictures, while in London they have come to be a favorite form of wedding present among the wealthy.

The daylight under which pictures can be well seen may be either direct or reflected. If direct, it should *not* fall normal to the surface. It may come from the right or the left or from the top, but it must not come from behind the spectator for two simple reasons. The first reason is that his own shadow will fall on the field of view, and the second that the surface of the picture will shine. So that the wall opposite the window is not a picture wall.

The aspect of the window is not of much consequence, for although direct sunshine kills delicate color, and is not adapted to show anything well, it can generally be diffused suffi-

ciently for most purposes by a blind of fine texture, and the architect is not much concerned, because the exigencies of the site and the plan will already have determined the aspect for him. The subject of skylights may be put aside for the moment, and windows taken to mean perpendicular openings in the wall. The placing of them should be decided simply on utilitarian grounds—that is to say, how the most wall space can be well lighted.

External appearance need have no weight in the argument, for a man who cannot make any possible windows compose well in the elevation is not an artist at all, and, therefore, not an architect. I may even go so far as to say that the more irregularly, unsymmetrically and arbitrarily they are placed the more scope there will be for developing a picturesque building.

From an outside point of view—that is, as far as the public are concerned, picturesqueness is the happiest attribute to be hoped for in a domestic building, since it will seldom be large enough to have any claim to sublimity or impressiveness. But there is this to be said, on the other hand, that there is no worse form of affectation than the effort after picturesqueness for its own sake.

In streets or terraces there is not much room for choice in the placing of the windows, so we generally find such houses comparatively well lighted. It is where the fantasy comes in, as in the country house or the villa, where your architect is rampant, that you may expect to see some artistic flourishes, constructive mistakes and incurable lighting.

I believe that if you design your house strictly from the inside and on merely utilitarian principles a good external effect is inevitable, or can only be missed through a singular degree of ignorance or meanness. Of course, if you are ignorant of construction or if you want to produce a more gorgeous appearance than you can honestly afford, there is no redemption for you ; you are bound to fail and to wish that you had never been born, for a mean building is usually destined to encumber the earth and to disgrace your name for at least ninety-nine years.

Let us at once assume that your client or his heirs will have some beautiful things to grace the inside of their dwelling,

and we should not overlook the circumstance that his daughters may be comprised in this category, so we must be careful to light properly this living sculpture no less than the flat surfaces of the wall pictures.

A happy expression on the human face is largely dependent on reflected light, which concerns surface treatment rather than construction ; but the fundamental consideration and root of the whole art of lighting depends on having only one single aperture in the wall, so that the direct rays may all enter parallel and not in conflicting directions. In artists' studios you will always find this rule carried out, and I will now attempt to explain the reason for it.

Let us suppose you have to draw a portrait. A single high light on the head involves a shade in exact proportion to it which you, as a draughtsman, can supply without any chance of error. The cast-shadow likewise will have a known well-defined and inevitable relation to the shade. This simplicity of light and dark enables you easily to grasp the form and to appreciate its undulations without uncertainty or confusion ; whereas, if you have two sources of light allowing rays to enter in two different directions, not only will you get on your model two high lights in inconvenient rivalry, but all your shades will be complicated and put out of their normal relation to their lights.

The unity and simplicity of one shadow will be marred by the intrusion of another, and the result will be that your apprehension of the real undulations of the surface and the beauty dependent on them will be hindered, and considerable spaces of the surface will have no meaning for you—the beauty revealed by one ray of light being neutralized or blotted out by others proceeding in a different direction, so that the seeing is very considerably impaired and the form shown at disadvantage.

This is one important argument in favor of establishing only one inlet of light in each room. But there is another argument even more important, because it affects not merely the form of an object, but also its color and texture ; in fact, it fundamentally affects your seeing power. The subjective effect of cross lights is to diminish the pupil of your eye, thus curtailing absolutely your physical power of vision. Suppose,

for instance, your room has two windows, one facing south and the other west, you will necessarily enter either on the north or the east side, since both the others are outside walls. Whichever door you enter by, you will find a window light shining right in your face. You will encounter your visitor, say, in the middle of the room, exposed against the glare of the south window, he telling as a dark patch. This is not the chief mischief to which I am asking your attention, since the light from the west window may show his face sufficiently well to be recognized. The main point is this : the light from the south window closes up the pupil of your eye, so that it will admit only about half the quantity of light that you are capable of perceiving, and the effect is equivalent to depriving you of one eye altogether—that is to say, your visual ability is crippled to the extent of one half, so that while you flattered yourself that with two windows your room would be twice as light as if it had only one, this advantage is neutralized by your being disabled from using half the available rays, to which must be added the further disadvantage that your visitor is exhibited under the most unfavorable conditions of light and shade.

In order to use all the seeing power that nature has provided you with, it is necessary that the light should reach your eye *after* having illuminated the object you want to look at, and further, that the pupil of your eye should be encouraged to open to its full size by being shaded from the glare of direct rays. For these reasons the consulting physician always places himself in the shade and you in the light.

As all architectural structures have upright walls, such as are very convenient to look at, it is important that they should be well flooded with daylight, so as to show such pictures as you have ; and next it is advisable to economize those walls as fields of beauty and not carelessly cut them up by chasms for doors or fireplaces. Seeing that your house is not to be a mere shelter or casual ward, but an intellectual preserve, it is worth while to relegate such interruptions of wall space as far as practicable to the corners. I know that there is nothing more painful to the soul of the modern architect than a blank wall, and that sleep for him is impossible until he has broken through and destroyed that invaluable area of repose. So

mad does it make him that he has been known to build in unnecessary pilasters in order to divide it up. I will venture to remind him that the impressiveness of a building from the outside largely depends on great unbroken areas of wall, and that these may be well studied in mediæval fortresses, which are admitted to be the most picturesque structures existing in Europe: take, for instance, the castle of Ivrea in Piedmont.

I think it may be taken as a general principle that any architectural design that is so complete in itself as to forbid the intrusion of the subsidiary arts is not adapted for a dwelling-house. I know a man whose house was finished by Owen Jones. He is very fond of pictures, but has to keep them piled up in stacks for fear of spoiling his walls.

I have noticed that very young architects are instinctively aware of the value of accessories, since in their perspective drawings they do not hesitate to balance a poor, lop-sided composition by the introduction of a carriage and pair, nor to collect a vagrant assemblage of pinnacles into a group by the judicious insertion of a tree. No doubt a good house ought to be adapted for an advancing civilization. We read that old King Cole's wants were very limited: "He called for his pipe, he called for his glass, he called for his fiddlers three;" but there is a young King Cole now—a being to whom a side-board, a billiard table and three fiddlers do not comprise all the in-door requisites. He calls for his books, his pictures, and his sculptors three; and if you architects practically ignore or suppress these luxuries, as you have been doing of late years by your abuse of daylight and your ignorance of its application, you will drive your young client to let his new villa for a lodging-house and to spend his time and cash in foreign travel.

A neighbor of mine is just now building a rather expensive house in the suburbs. His architect is evidently bent on doing something quite original, and among other peculiarities he has placed all the day rooms under a deep veranda made of copper, calculated to keep out all daylight. The poor client, I surmise, had no idea what the first consequence would be—viz., that he must straightway get rid of such works of art as he had and abjure every sort of beauty for the rest of his natural life. The unfortunate man will have very long gas bills.

We have arrived now at one well-defined and very important rule, which is, that the daylight should be admitted to a room on one side only. Of course, every rule may have exceptions. On the east coast of England you will have noticed many little towers, built usually of wood, with an outlook in three directions—viz., up the coast, down the coast, and out to sea. These were wreckers' nests, where dwelt those whose livelihood depended on ships cast away upon that inhospitable coast, and robbery of the unfortunate mariners.

A short time ago I was spending a day at Greenwich Observatory, where the chief day-room had windows to the north and the west. This was one of those rare deviations from my rule that could easily be forgiven, for each window looked out on one of the most beautiful views in England. When you entered that room you never for a moment thought of what was within it, although good taste reigned. You walked straight to one of the windows and remained there. No one could find fault with the judgment of the architect. Here was an exceptional opportunity not to be passed by, even at the cost of an ill-lighted room, for the summer outlook on a paradise was worth some sacrifice. Having resolved on that sacrifice, he could easily afford to violate comfort, as he has done, by a French window, but it opens into an old English formal garden, with quaint apple and fig trees in it, such as would charm the soul of Mr. Reginald Blomfield. These are the only exceptions to the rule that occur to me.

That part of a window which is most valuable is the top half, as it admits most light per square foot. The lower part only admits light reflected from the earth, and more or less colored; therefore roll-blinds from the top should never be allowed. Any other form of curtain is less mischievous, but a roll-blind should be fixed at the bottom. In a well-lighted house the windows are carried right up to the cornice. Window heads, whether traceried or lancet, may be admirable, but should be reserved for other buildings where people do not dwell. If you ask yourselves the question which rooms are pleasantest of all those you have known, I think only one answer can be given, and it will be this: "Those rooms are pleasantest in which work is done." Few would reply, "Those from which you have the best view." The man who

would say so must be one whose home is sad, solitary, and unlovely ; whose memories are the only beautiful visions on which his thoughts can linger. How often do *you* resort to your window with relish and turn away from it with reluctance ? In your town experience I may confidently reply, " Never." If you decide the question by the suffrage of all the fairly cultivated men and women you know, I think the vote would be given in favor of the painter's studio, which has either a skylight or a window too high to look out of. I believe few, even among women, would vote for the drawing-room. It does not usually fall to the lot of gentlefolks to spend much time in workshops, but if you have a wide experience you will cherish the remembrance of the days you have spent with the goldsmith, the blacksmith, or the carpenter, and none of those shops were lighted by architects, none of them had any outlook. If you would rather look *out* of your nest than *into* it, then must your life be sad indeed, and you had better get away into the wilderness or to the top of the Hindu Kush.

There is in the city of Timbuctoo a great town house which illustrates nearly all the blunders that can arise from ignorance of lighting. The Sheik is a man of the utmost good nature and nobleness of soul, and takes pleasure in his splendid possessions just in proportion to the number of intelligent men who will share their enjoyment with him, so I surmise that some of you have been his guests. He has a collection of pictures of first-rate importance, but his ingenious architect has so contrived the interior that hardly any of them can be well seen. The value of some of the pictures is so great that a very few of them would cover the cost of the whole building, yet many of them are condemned to blush in dark corners in order that the architect should indulge his childish taste for symmetry. The principal suite of rooms face the south, and are all lighted in the orthodox way—viz., on their long sides. The opposite long walls do not afford any good lighting, because, as I pointed out, your own shadow and the shine on the pictures conspire to render them invisible, and the gigantic fireplaces occupy about a third of the area even of these walls. The only well-lighted spaces that the plan allowed were the short walls that stand north and south. These he has wantonly and ruthlessly wasted by opening a vast door-

way in the middle of each of them big enough for the gate of a city, and so the design was finished.

I think many architects would be surprised if they knew how fine an effect is produced by entering a room at the corner instead of at the side. It must be very unusual, since I do not know more than two or three instances of it. Its charm depends on the varied angles under which the walls present themselves to the eye when you enter, as all of them are seen under oblique instead of parallel perspective, and the suggestion is conveyed that you should go on and prosecute your researches in the ramifications of the structure. You are not confronted by a flat opposing partition right across the line of advance.

All deviations from mere symmetry are dear to the soul of the artist, because they give occasion for composition—that is to say, the creative faculty—and if there were no other reason for placing a window out of the centre of the wall this would be sufficient, but as a matter of experience many reasons for doing so are not far to seek.

There are instances in which one whole wall is filled in with glass, and with excellent effect. There is one in a house very near my own built by Mr. Waterhouse. It is the window of a fine staircase, the other whole walls of which are well lighted and well adapted for pictures; but, alas! the use of stained glass in the window has put this out of the question, and instead of an intellectual feast of fine art you are indulged with some admirable color and design in the glass itself, but the walls are wasted.

Let us now turn our attention to the second division of our subject, and determine how to deal with the daylight when we have let it in. This important question is too often shirked by the architect, and shuffled on to a scapegoat called the decorator. This pernicious person has the power of doing immense mischief at small expense, so he does it with no niggard hand.

For a concrete example let us refer back to the great house in Timbuctoo. The picture show begins at the dining-room, the walls of which are covered with a rich stamped leather of dark maroon and gold, affording a fine background both for pictures and guests. The decorative mind was just able to

grasp this principle, and, knowing there was "nothing like leather," he carried it right up from floor to ceiling, absorbing that part of the wall which is too high above the spectator to be serviceable as background, and destroying its power of reflecting light, which is the only function it could have fulfilled, and would have fulfilled with admirable effect if its surface had been tinted with tempera or an ordinary wall paper of a cream color. The ceiling, as usual, is cut up with mouldings and coloring of senseless pattern; but, even if it were well designed, he would surely be an odd sort of visitor who would turn away from Vandyck or Sir Joshua Reynolds to gaze at the ceiling. A few sixpenny buckets of whitewash expended on that ceiling would have redeemed the room and proved that it belonged to an intelligent human being. Whitewash is a byword with the modern æsthete, but it has its uses.

There are two different conditions under which light can be reflected. They are known in optics as whole light and scattered light. Whole light advances in one direction only. An ordinary plane mirror reflects whole light. The light called scattered light proceeds in all directions at once, and cannot be focussed by the eye so as to show images. Such is the light reflected from any granulated or dead surface, such as tempera, snow or sand. If you require a polished surface to reflect light into a dark corner, it will fail to do so unless it is placed at exactly the proper angle, whereas a scattering surface will be efficient at any angle. All surfaces that are not strictly required to do duty as backgrounds should have a scattering surface so as to diffuse the illumination, and the lighter their color the more efficient they will be for this purpose.

In Italy, unfortunately, there is more or less good art displayed on the ceilings of the great houses. All men who have seen it will agree that it could not have been more foolishly misplaced or more effectually wasted.

The greediness that asks for every surface to be made beautiful is not only a childish greed that wishes all bread were cake, but an immeasurably mischievous one, for there is in every room one surface that can only render good service when kept plain, and so enabled to set off to advantage the beautiful things that are more favorably placed for examination. That surface is the ceiling. The ceiling is an invaluable re-

flector and economizer of light, and that is the only thing it can do thoroughly well.

If the economy of daylight by reflection is to be overlooked, all art may be banished from the dwelling, for few things are more painful than the spectacle of beauty wasted. An excellent reflector of scattered light is a white linen cloth. It is well known that people look their best at a dinner-table, and I suppose it has been the practice in all civilized ages to serve the dinner on a "fair linen cloth." When the lamps are alight a strong reflection is sent up from the tablecloth into the faces of the guests, filling their shady recesses with a warm illumination, and giving them a more or less angelic appearance, or, at all events, putting away the lowering and gloomy evidences of hunger and ill-temper.

Your architect will gladly provide you with good shelter where a horde of menials can eat and sleep comfortably at your expense. Viollet-le-Duc is careful to go further, and provide that you shall look out on the prettiest view, but he calmly assumes that you are sure not to have anything inside your house so well worth looking at as the houses or shrubs opposite, and the historical conclusion of the whole matter is that in the reign of Queen Victoria, in nine great houses out of ten, any kind of art is out of place, for the simple reason that the architects have misused the daylight and wasted the wall space.

One word more has to be spoken as to the use of stained glass, and it is this: If you wish to indulge in stained glass you must make it your one and only form of color decoration. You can have superb color in your window, but you take away its usefulness as a source of light and make it an object to be looked *at*, and when you *have* looked at it your eye is unfitted to see any other color. Even the splendid tints of Eastern embroidery or carpets cannot stand the competition; white light is absolutely necessary for the display of their beauty.

Mr. Burne-Jones lately designed a beautiful picture, and Mr. Morris worked it in tapestry for the glory of the chapel of Exeter College. Some ingenious person has placed it on the same wall with a gorgeous stained-glass window, and opposite to another, so that none of its fine color can be seen. I need

not enlarge on this subject. Once seen, that painful spectacle can never be blotted out of your memory. The color of your reflective surface is only one degree less important than the color of your window glass itself.

I once knew a physician who had the walls of his consulting room painted of a strong uniform green. He was quite unaware of its professional advantages, and said he thought it restful to the eye. His decorator had told him so, having doubtless heard that green shades were used by people with weak eyes. As a matter of fact, all his patients appeared to have the cholera, and it had to be repainted. A few years ago nearly every reception-room in London was papered with a dull sage green—a sad emphasis to lay on the depressing climate we have to live in, but a good man and a friend of mine was responsible for it.

I am afraid you will think I display an unreasoning animus against the architect, and that I have spoken rashly and at random as to his ignorance of the use of daylight. But that is not so. There is an institution in which I lately offered to endow a prize for the best design for a house in which pictures could be well seen without a special gallery constructed for the purpose. The Council were pleased with the idea, but, scorning my modest £25 a year, made it into a handsome £200. Two or three distinguished architects were appointed to judge the competition, and they actually awarded the prize to a design which afforded not one single well-lighted wall in the whole structure, and yet none of them were aware that they had done anything ridiculous.

There is a good deal to be said as to skylights in lighting the dwelling-house, but you have probably heard more than enough on the sacredness of the wall and the importance of one window. Allow me to suggest, in conclusion, that these matters are worthy of your most serious study.—*The Architect.*

AN INK which has recently been placed upon the European market, according to the *Effective Advertiser*, seems well calculated to ward off lawsuits for breach of promise. It is a watery solution of iodine and amylum, and produces at first a beautiful blue-black writing, which begins to fade after a few days, and after the lapse of about a week disappears entirely.

ARCHDEACON FARRAR ON THE DRINK BOND-AGE.

ARCHDEACON FARRAR, speaking recently in the Royal Victoria Hall, London, said :

“ For every victim of the slave trade there were a thousand who were bound in the strong fetters of drink. Whenever any effort was made to redress a wrong, to remove a curse, or fight against an evil, the forces of the world, the flesh, and the devil put on their utmost possible strength, and by lies and sophistry and bribery tried to check the efforts for good. And this being so, all those who desired the good of their country must, in this instance, rally their forces and amalgamate in every possible way to combat this unscrupulous antagonism. If any man desired to act as a good citizen, and was only convinced that there was in the midst of us a burning evil, it was his duty as a man and a Christian to fight to his utmost against this terrible evil. If there were any who had not seen the evil—if that were possible—there were only two ways to be convinced—one by the evidence of competent witnesses, and the second by the evidence of indisputable facts. In both of these branches they had proof which was utterly unlimited. It came from every age, and rank, and clime, and every century since time was, since man appeared on the surface of the earth. In our own country, looking at that alone, we had the evidence of all the judges, of all the philanthropists, of all the poets, of all serious writers, of all the clergy, and of all persons who had at heart the good of their country, from the highest rank to the lowest, down to the humblest honest policeman who walked the streets, or the humblest missionary who visited the homes of the poor. They had the evidence of the Archbishop of Canterbury, who stated that until the work of temperance reform was done no other work of the Church would be effectually carried on. They had the evidence of the greatest man in the world, Mr. Gladstone, whom in March, 1880, he heard utter these memorable words—words that sent a perceptible thrill through the House of

Commons : ' The evils produced by drink are worse, because more continuous, than those produced by the great historic scourges of war, famine, and pestilence combined.' At a time when they had the claims of the unemployed constantly before them, it was well to remember what the Earl of Shaftesbury had said—and he recommended these words to all meetings of the unemployed—' It is absolutely impossible to do anything permanently or considerably to relieve the poverty until we get rid of the curse of drink. The one solution of the social problem lies in the hands of the working classes themselves—they may uplift themselves into plenty and happiness out of their present position if as a class they will get rid of what drags them down.' For any nation to neglect the warnings of such men was worse than ignorance—was worse than folly."

SANITARY ADVANTAGES OF SOUTH CAROLINA— HER PINE FORESTS AND MINERAL SPRINGS.

By A. N. BELL, A.M., M.D.

THE face of the country is very similar to that of Georgia. From tide water to about eighty miles inland it is low and alluvial, and, to a very considerable extent, swampy and insalubrious. But after this the land rises abruptly in successive terraces, alternating with beautiful valleys and rounded hills, until it reaches an average altitude of about two thousand feet above the level of the sea, and a climate of rare salubrity all the year round. And for those who would seek a greater altitude in the same latitude, the highest peaks of the Blue Ridge Mountains, which run through the northwest part of the State, attain an altitude of four thousand feet.

Charleston, the chief commercial city, is picturesquely situated at the confluence of the Astley and Cooper rivers, almost at the level of the Atlantic, only seven miles distant, the harbor being a large estuary with an average width of two miles. The situation of the city on the point of the peninsula between the two rivers bears a striking resemblance to that of

New York between North and East rivers. Moreover, the resemblance is rendered still more complete by Sullivan's Island, at the entrance of the harbor, it being the popular summer resort and surf-bathing beach for the people of Charleston, as that of Coney Island for the people of New York and Brooklyn ; and here, too, are a number of hotels and boarding-houses and some handsome summer dwellings of the wealthy.

The *climate* of Charleston, latitude $32^{\circ} 45'$ north, and longitude $79^{\circ} 57'$ west, is very similar to that of Savannah. The mean temperature is : For spring, 65.8° ; for summer, 80.6° ; for autumn, 68.1° ; for winter, 51.7° ; for the year, 66.6° . The average rainfall is : Spring, 8.60 inches ; summer, 18.68 ; autumn, 11.61 ; winter, 9.40 ; year, 48.29. Prevailing wind, southwest. From careful observations taken during the year 1872 it was found that the mean temperature of January was 45° ; of February, 48.5° ; of March, 51° ; of April, 65.6° ; of May, 74.9° ; of June, 79.7° ; of July, 84.1° ; of August, 81.8° ; of September, 77.8° ; of October, 69° ; of November, 59° ; of December, 49° . There is comparatively little rainfall in winter ; the days are bright, sunny, and cheerful ; and it is seldom that even invalids are compelled to remain in-doors on account of the inclemency of the weather. As in the case of Savannah and Augusta, many consumptives and other invalids prefer remaining in Charleston—where they can enjoy all the comforts, conveniences, luxuries, facilities, diversions, and social attractions of a large city—to going to the sanitary resorts farther south. Charleston is especially attractive to those who, without being sick, desire to escape the rigors of a Northern winter.

The suburbs are remarkable for the beauty of the scenery, and the drives charming. *Magnolia Cemetery*, accessible by horse cars, just outside the city, is tastefully laid out, embowered in live oaks and magnolias, and contains many fine and noteworthy monuments of Revolutionary heroes and other men of fame in literature, science, and art.

Summerville, a small town situated on a ridge which is covered with pine woods, extending across the peninsula from the Cooper to the Astley River, only twenty-two miles above Charleston, is a healthful resort, particularly in winter, for in-

valids who would avoid the damp and chilly east winds, which sometimes occur at that season in the city.

Columbia, a city of fifteen thousand five hundred inhabitants, situated at an altitude of only three hundred feet above the level of the sea, latitude 34° north, longitude $81^{\circ} 4'$ west, has always been a favorite refuge for fugitives from Charleston in times of yellow-fever; and with the exception of malarial fevers, due to removable causes, is generally healthful.

Camden is also an attractive place, situated in the central part of the State, in a salubrious region, about four hundred feet above sea level, known as the "Sand Hills," well wooded with the long-leaved pine, the climatic and local conditions generally being similar to those of Aiken. Indeed, the same may be said of the towns in the interior of the State generally.

Aiken, a town of about twenty-five hundred inhabitants, latitude $33^{\circ} 32'$ north, longitude $81^{\circ} 34'$ west, situated five hundred and sixty-five feet above the sea level, in the pine forest region. It enjoys a wide and deserved reputation as a winter resort for consumptives, and an all-the-year-round healthful locality.

Mean winter temperature, November-January, 49.77° ; spring, February-April, 56.55° .

The soil is sandy, so that after rain the walks quickly dry, and the weather is rarely such as to confine one to the house all day at any season. The average rainfall in spring is 11.97 inches; summer, 13.89; autumn, 7.34; winter, 7.16; for the year, 40.36. The climate is not less beneficial to the rheumatic and gouty than to consumptives.

Both walks and drives are attractive and beneficial to invalids. Good horses and carriages are always obtainable at a reasonable price.

PINE FORESTS.

It is a common characteristic of the soil of pine forests that it is dry, or, at the least, that it dries quickly after rain. This quality of pine-forest soil is due to natural drainage, accomplished by the process of growth and decay of the roots of the saplings and trees. No boy who has ever engaged in the

sports of hare-hunting in a pine thicket, or farmer who has cleared pine lands, that has not acquired some familiarity with stump-holes—the holes left by the decayed tap roots of the young trees. All forests spring up at first in thickets, and as the young trees enlarge and become crowded for want of room to spread their branches, the “survival of the fittest” soon becomes a condition of their existence. The tender saplings, as they die out and give room, also bequeath benefits to their survivors by establishing a system of drains promotive of their healthy development. This they do by the mode of growth and decay of the roots.

The tap root of the pine, penetrating from a few inches to a few feet in depth, according to the size of the sapling or tree at the time of its death, and its numerous radical branches as they decay, establish a natural system of soil drainage, which may be studied with profit by engineers and agriculturists. This drainage system of pine thickets begins when the trees are quite small.

All observers know that pine thickets are of exceedingly thrifty growth. During the first year, from the time the seeds take root, the trees grow to the height of from twelve to twenty inches; the second year three times as much—three to four feet; and by the end of the third year the young trees are from eight to ten feet high and the thicket almost impenetrable, and at about this time the weaklings begin to perish. The sappy roots decay with wonderful rapidity, leaving in their places an inimitable network of soil drains. To this natural drainage system and the consequent dryness of the soil is doubtless, for the most part, due the proverbial healthfulness of pine forests.

The region round about Aiken is typical in this respect. The long-leaved pine here finds its most congenial habitat in a temperate climate at about six hundred feet above the level of the sea. All such regions are proverbial for their salubrity.

MINERAL SPRINGS.

Spartanburg, in the northern part of the State, two hundred and twenty-three miles from Charleston and ninety-three miles from Columbia by the Greenville and Columbia and Spartanburg and Union railways, is pleasantly situated in the midst

of a region famous for its gold and iron, and is much resorted to in summer by people from Charleston and the lowlands. It is also a good winter resort, the air being cooler than, but quite as dry as that of Aiken. It is in this region particularly that mineral springs abound. Glenn's Springs here are strongly impregnated with sulphur, and contain traces of sulphate of magnesia, with sulphate, bicarbonate, and chloride of lime. The waters are considered efficacious in certain forms of rheumatism, scrofula, and dyspeptic affections. The Limestone Spring is a chalybeate, and possesses valuable tonic properties.

The scenery around Spartanburg is very attractive, and not far from the village is the memorable Revolutionary battle-field of the Cowpens, located on the hill-range called the Thickety Mountain. The battle was fought January 17th, 1781, and resulted in the defeat of the British under Tarleton. In the olden time the cattle were suffered to graze upon the scene of the contest—whence its name.

Chick's Springs, in Greenville County, on the Ennoree River, just below the mountains, are also a good deal visited. The springs are two in number. One is slightly sulphurous, and is used for hepatic and intestinal affections and cutaneous diseases; the other is a mild chalybeate, and is employed as a tonic. The Williamston Springs, near the railway between Anderson and Greenville, are represented as having valuable tonic and alterative properties.

These springs were formerly much resorted to, and, considering their delightful situation and the salubrity of the climate throughout this region, there is reason to believe that the time is not far distant when the growing prosperity of the people thereabouts will avail themselves of the favorable circumstances to even more than re-establish the whilom attractions.

Besides the above named there are Watt's Spring, near Glenn's; chalybeate and sulphur springs in Laurens County; chalybeate in Asheville County; Williamston Spring in Anderson County, near Greenville; Garrett's chalybeate spring near Spartanburg; Kirby's Spring, three miles from Glenn's; alkaline springs, near Gaffney City, Spartanburg County; Ambler's mineral spring, seven miles from Pickens Court House, Pickens County; Cherokee Springs, chalybeate, eight miles north of

Spartanburg ; Love's Springs, three miles from Cowpens ; chalybeate springs, quarter of a mile from Taylor's Station, near Chick's Springs ; sulphuretted springs, three and a half miles from Taylor's Station ; Cowpens Furnace Springs, near Pacolet, Spartanburg County ; "Mineral Springs," chalybeate, Marion County ; "Mineral Springs," at Bennettsville, Marboro County ; at Henry Knobs, York County ; seven miles from Abbeville Court House, Abbeville County ; chalybeate springs, near Parson's Mountain, Abbeville Court House ; saline springs on Saluda River, near Pierson's Ford, Abbeville County ; Mineral Well, sulphuretted, two miles west of Gaffney City, Spartanburg County ; New Spring, sulphuretted chalybeate, eight miles west of Spartanburg ; Poinsett's Spring, Spartanburg County ; Reedy Springs, near Cranesville, Marion County ; Seneca Mineral Springs, chalybeate, Seneca, Oconee County ; Wilson's Springs, Spartanburg County ; West's Springs, chalybeate, Union County.

Some of the above-mentioned springs are of good local repute, and a few are known to possess characteristic properties. But Glenn's Springs are the only ones of which there is a reliable published analysis (C. W. Shepherd, Jr., 1880), as follows :

Magnesium carbonate.....	3.32	grains per gallon
Calcium sulphate	91.50	" "
Sodium chloride.....	2.21	" "
Potassium chloride.....	0.53	" "

CHARLESTON ARTESIAN WELLS.

Citadel Green Well.

Sodium carbonate.....	47.26	grains per gallon
Iron carbonate.....	0.34	" "
Calcium sulphate	0.44	" "
Magnesium sulphate.....	0.17	" "
Sodium nitrate.....	0.55	" "
Sodium chloride.....	11.39	" "
Magnesium chloride.....	0.23	" "
Sodium silicate.....	2.52	" "
Silica.....	0.36	" "
Organic matter.....	a trace.	

Old Artesian Well.

Sodium carbonate.....	71.06	grains per gallon
Calcium bicarbonate.....	0.12	“ “
Magnesium bicarbonate	0.02	“ “
Sodium chloride..	63.38	“ “
Carbonic acid.....	0.79	“ “
Silica, organic matter, iron oxide, aluminium oxide, of each a trace.		

Commercial Cotton Press Well.

Calcium carbonate.....	26.24	grains per gallon
Calcium sulphate	10.62	“ “
Magnesium sulphate.....	13.88	“ “
Sodium silicate.....	204.41	“ “
Alkalies, chlorides.....	1.98	“ “
Undetermined.....	7.35	“ “

Chisholm's Mill Well.

Sodium carbonate.....	30.38	grains per gallon
Calcium sulphate.....	4.12	“ “
Potassium sulphate.....	19.21	“ “
Magnesium sulphate	2.82	“ “
Sodium chloride.....	136.88	“ “
Magnesium chloride.....	4.85	“ “
Sodium silicate.....	0.66	“ “
Silica.....	2.34	“ “
Loss.....	13.17	“ “

COOSAW ARTESIAN WELL.

Sodium carbonate.....	30.75	grains per gallon
Sodium sulphate.....	2.24	“ “
Calcium sulphate.....	0.63	“ “
Magnesium sulphate.....	1.04	“ “
Potassium nitrate.....	0.80	“ “
Sodium chloride.....	6.29	“ “
Potassium chloride.....	1.94	“ “
Sodium silicate.....	1.82	“ “
Silica.....	1.20	“ “
Organic matter.....	1.47	“ “

THE REPUTATION OF THE DEAD.

THE following extract from a recent number of the *Medical Record* fully accords with the views of THE SANITARIAN. And, as if this were not enough to show the utter incompetency of the New York coroner system, the same disregard of the *reputation of the living* and the elucidation of knowledge, has since been shown by the non-exaction of a post-mortem examination in the case of Colonel Shepard, whose death occurred as the result of ether administered by two distinguished surgeons.

The coroner system of this city and State has produced a good many rank iniquities, but nothing so shocking and painful as the recent occurrence in connection with the suicide of a young girl in this city. The coroner published as part of his report the following :

“The autopsy, while not revealing that the young woman had the dread of maternity as an incentive to suicide, suggested that she might have been driven to the deed by remorse for recent conduct, and had a reason for passing herself, in contemplation of suicide, as a married woman.”

We do not say that these were the coroner's words, but this statement was given to the press as coming from him, and its authenticity has not been denied. It is difficult adequately to characterize a proceeding which thus wantonly publishes to the world the suspected dishonor of the dead.

In a prominent newspaper in this city there occurs the following comment on the recent suicide of this young woman : “The evidence of suicide was clear and conclusive, and the lugging in of a coroner's autopsy to blacken the record of the girl's life was a wilful impertinence on the part of that official.”

We are quite in accord with this lay opinion on the subject, for we believe that, aside from the consideration of common decency, from a medical standpoint alone, the public should not be regaled with the details of autopsies upon unfortunate young women, or with prurient hints as to the influences to be drawn from the revelation of the post-mortem table. As

every gynæcologist can testify, the virtue of a young girl is not to be positively determined by an inspection of her external genitals, neither is an early abortion to be predicated because of mere enlargement of the uterus. It is hardly a fortnight since a hasty inference of the latter sort placed a reputable physician under a cloud on a charge of malpractice, from which he was fully exonerated by a jury of experts.

Competent pathologists know that the greatest care must be exercised in drawing such inferences from an examination of the female pelvic organs, and would be slow to give a positive opinion on the witness stand based on anatomical evidence alone. How unfortunate, then, is the tendency at the coroner's office, to issue *ex cathedra* statements to the daily papers, not only damaging to the reputations of the dead, but injurious to public morality—statements which are too often based on evidence that would not stand for an instant in the courts of law. Sometimes this is done thoughtlessly, but more often, it would appear, out of pure love for notoriety. We doubt not that many coroners' autopsies are entirely unnecessary, so far as the obtaining of any evidence as to the cause of death is concerned. If the reputation of a physician's patients is sacred, how much more carefully should that of the dead and their sorrowing friends be guarded?

We believe that unless it becomes necessary for a coroner to report in court the details of an autopsy upon the body of an unfortunate young woman, neither such details nor any hint regarding the case should be furnished to the press. In the interests of decency and morality we protest against this intrusion upon the sanctity of death.

THE CHURCH OF ENGLAND SANITARY ASSOCIATION.—At a recent committee meeting of this association in Manchester recently, at which the Archdeacon of London presided, it was resolved that in view of the possible return of cholera, it was desirable that the clergy and ministers of religion generally, having special opportunities throughout the country, should call attention to the duty of every one to concern himself in sanitary matters. It was also resolved to urge the formation of parochial branches which would serve as vigilance sanitary committees.

CHOLERA AND KASHMIR.

By A. MITRA, L.R.C.P. and S. Ed., R.B., Chief Medical Officer, Kashmir.

DR. ERNEST HART, in his article entitled "Cholera and Our Protection Against It," in the October number of the *Nineteenth Century*, says: "Starting from its great focus in Kashmir, in the middle of May, it has reached Moscow before the end of June, St. Petersburg not long afterward." A glance at the map of Northwestern India and Central Asia will show that this statement cannot be correct. As it may, however, produce a wrong impression in some whose knowledge of Central Asian geography is not clear, it is necessary to refute Dr. Ernest Hart's statement, specially because there are critics of England, in the European continent, who may say "England is responsible for the introduction of cholera into Europe," for why were steps not taken to prevent the starting of cholera from "its great focus in Kashmir"—one of its dependencies?

The starting point of the epidemic, as we all know, was in the Northwestern Provinces of India in the end of March last; the disease then travelled through the Punjab to Afghanistan, where it prevailed in April. The main route lay through Afghanistan into Russian territory and along the Caspian to Baku and Tiflis. From the Punjab a branch started from the right flank of the main route and reached Kashmir in the first week of May, by which time the epidemic had reached close to the Russian frontier by the main route. Reaching Kashmir, it did great havoc in the valley, but it is well known that it did not go beyond its boundaries. Anatomically speaking, this branch line ended in a *cul-de-sac*. It did not reach Gilgit nor even the minor valleys beyond Kashmir. Cholera came to Kashmir simply by overflowing the margins of its endemic area in the Punjab. Coming into it, it found a most suitable soil and therefore took a strong foothold, till ultimately it died a natural death. The track which cholera usually pursues beyond India is somewhat as follows, as summed up by the

Lancet from Dr. Bryden's reports. "When an epidemic occurs throughout the Central Provinces its western extension is through Guzerat, Karachi, Southern Persia, and Arabia to the Mediterranean. When the epidemic extends through Bundelkhund, Agra, Ajmere, and Cabul it travelled toward Northern Persia and the shores of the Caspian."

Dr. Macnamara, in his "Treatise on Asiatic Cholera," says : "It appears very certain, therefore, that the course usually followed by cholera, in its advance westward into Europe from India, has been either along the Red Sea (notably from Mecca) into Egypt, or else along the shores of the Persian Gulf, and up the Tigris or Euphrates into the north of Persia or into Turkey in Asia, passing into Europe *via* Astrakan, or else gaining Orfa and Aleppo, and so reaching the Turkish dominions in Europe. It is evident, however, from a perusal of a history of the disease, that cholera has, on several occasions, travelled from the Punjab into Cabul, appearing at Herat, and from thence extending to Meshed, Teheran and Tabreez, or along the shores of the Caspian Sea. It followed this course in 1829, 1845 (from Cabul), and in 1853. Each of these years was followed by an outburst of cholera over the north of Persia, and its extension into Europe over the Caucasus Mountains, or more commonly, by the sea route from Reshed to Astrakan."

The course taken by the cholera of 1892 was much the same as that of 1829, 1831, and 1847 ; only the rate of its progress has been much accelerated on account of easier inter-communication between Central Asia and Europe through the Transcaspian Railway. The disease was first officially notified as present in Astrakan on June 18th, at Moscow on July 24th, and at St. Petersburg on August 1st, and we also know the approximately correct dates of its appearance in several places from Cabul to Baku. If one studies the history of former Indo-European epidemics, one would not fail to notice how strikingly the march of this epidemic resembles those of its predecessors.

A startling statement has been made by Dr. Barodel before the Academy of Medicine in France, that cholera occurred at Nauterre, near Paris, on April 2d, that is, five weeks before the first case occurred in Kashmir. In the diagram represent-

ing death-rates from cholera in Paris and its suburbs, published in the *Lancet* of October 1st, reproduced from the Report of Dr. Brousse, Reporter of the Permanent Committee on Epidemics and Municipal Councillor, 24 deaths are shown in April in the suburb of Paris. It has also been stated by the Paris correspondent of the *Lancet* that at the Nauterre prisons there were 43 deaths from cholera, most of them occurring in the month of April. Does this not show that there was a focus of an epidemic in Europe itself long before it marched from India, which epidemic starting from Nauterre, visited Rouen, Havre, and Antwerp in succession?

Kashmir, like Hamburg, has paid dearly for its sins, and the calamity of the past is an object lesson for us. Though hitherto by its isolated position Kashmir has not been the starting point of cholera epidemics westward, it may be so in future when its northwestern frontier is more opened out. Dr. Ernest Hart's statement, though not true now, will be so years hence. "Nothing succeeds like success." The freedom of England from the present epidemic shows that sanitation, and not quarantine and cordons, is the only effectual safeguard against epidemics.—*Indian Medical Record, February 1st, 1893.*

EMPLOYMENT AND HEALTH.

CHARLES STEVENSON, a well-known actuary of Edinburgh, has contributed to the "expectation of life" tables the most recent information on this subject, in the shape of a little paper on "The Effect of Employment on Life and Health," in which many curious facts are presented concerning the relation of occupations to mortality rates.

The largest mortality rate in the in-door occupations considered is found among liquor-sellers, a fact which explains the reluctance of life insurance companies to write insurance on that class of risks. Mr. Stevenson finds the average mortality among 1000 liquor-sellers to be 29.2, increasing from 12.2 between the ages of 20 and 29 to 102.8 from age 70 upward. He divides the liquor-sellers into three classes—licensed grocers, hotel-keepers, and bar-keepers—and shows the respective mortality rates to be, from 25 years of age upward, 18.9,

26.8, and 33.4 respectively, which shows that the life risk of the average bar-keeper is an exceedingly hazardous quantity.

Among 1000 gardeners the death-rate is found to be 10.6 ; carpenters, 12.4 ; shoemakers, 13.4 ; stone-masons, 16.8 ; butchers, 17.8 ; and inn-keepers, 21.4. This agrees precisely with the information collected by American life-insurance companies, which shows the butcher to be a hazardous risk, second only to the inn-keeper and saloon keeper.

The most curious facts resulting from this investigation are those concerning the death-rate among the clergy, a class which the author has divided into three sections, namely, Church of England clergy, Nonconformist clergy, and Roman Catholic clergy. One thousand cases investigated in each of these sections shows the death-rate to be lowest in the Church of England clergy, where the average is 10.2, and the highest in the Roman Catholic clergy, where the average is 15.7. These figures suggest an interesting contribution to the study of celibacy in its relation to the mortality rate.

The value of out-door exercise, with abundance of fresh air and a clear conscience, is amply set forth in a comprehensive table showing the number per 100 of the various occupations that attain the age of 70 or more. Again the clergy tops the list, with 42 out of 100 who attain the age 70, while the farmers come next with 40, and the other occupations in the following order : Commercial men (drummers), 35 ; military men, 33 ; lawyers, 29 ; artists, 28 ; teachers, 27, and physicians, 24.

The apparently anomalous feature of these figures is that military men, whose occupation seems to be most hazardous from a layman's point of view, in reality attain a greater longevity than their less warlike brothers of the sciences and arts. This favorable position of the military man, considered from a life-insurance standpoint, has come to be recognized in recent years to such an extent that one of the largest life companies has recently waived all restrictions in the matter of military risks, its experience tables showing the loss of but one risk during the last three South American revolutions.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Reports from 98 cities, towns, villages, and sanitary districts, aggregating a population of 801,581, show a total of 1019 deaths from all causes in February. This corresponds to a death-rate of 1.27 per 1000 for the month, or 15.24 per 1000 per annum. There were 187 deaths due to consumption, 121 to pneumonia, 34 to bronchitis, 6 to congestion of the lungs, 6 to diarrhœa and dysentery, 51 to other diseases of the stomach and bowels, 21 to diphtheria, 8 to croup, 14 to scarlatina, 3 to small-pox, 3 to whooping-cough, 18 to typhoid-fever, 8 to cerebro-spinal-fever, 1 to malarial-fever, 29 to cancer, one to erysipelas, 89 to diseases of the heart, 3 to alcoholism, and 416 to all other causes, among which 7 were due to *la grippe*.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, sums up the mortality reports for February as follows :

The mortality report for February has been received from 167 towns in Connecticut representing a population of 785,820.

There were 1106 deaths reported in the State during the month. This was 173 less than in January ; it was 170 less than in February, 1892, and 40 more than the average number of deaths in February for the five years preceding the present.

The number of deaths in the second month of this year compared with the same of each of the five years preceding was as follows : 1893, 1106 ; 1892, 1276 ; 1891, 948 ; 1890, 1089 ; 1889, 922 ; 1888, 1097.

The death-rate was 17.1 for the large towns ; for the small towns, 16.3, and 16.9 for the whole State.

The deaths from zymotic diseases were 191, being 16.9 per cent of the total mortality.

The deaths from consumption numbered 124.

New Haven, 95,000 : Total mortality, 153. Annual death-rate per 1000, 19.0.

Hartford, 58,600 : Total mortality, 115. Annual death-rate per 1000, 22.3.

Bridgeport, 55,000 : Total mortality, 69. Annual death-rate per 1000, 15.0.

Waterbury, 34,000 : Total mortality, 48. Annual death-rate per 1000, 17.0.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

Wilmington, 67,000 : W. C. R. Colquhoun, Secretary, reports for the year 1892 as follows :

The mortality amounted to 1267, showing a death-rate of 18.91 in each 1000.

There were 507 deaths of children under five years of age. Zymotic diseases caused 205 deaths, of which number 29 were from typhoid-fever, 66 from diphtheria and croup, and 66 from diarrhœal diseases.

Consumption caused 124 deaths, and pneumonia, 86.

During the month of February there were 84 deaths, of which number 28 were under five years of age.

The annual death-rate was 15.04 per 1000.

There were 7 deaths from zymotic diseases, and 12 from consumption.

DISTRICT OF COLUMBIA, 250,000 : C. M. Hammett, M.D., Health Officer, reports for the week ending March 25th a mortality of 136, of which number 53 were of colored people, and 36 were under five years of age. The annual death-rate was 27.2 per 1000. There were 24 deaths from zymotic diseases, and 44 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,438,000 : J. D. Ware, M.D., Commissioner, reports 2012 deaths during February, representing an annual death-rate of 16.78 per 1000.

The mortality under the age of five years was 887. The deaths from zymotic diseases numbered 371, and from consumption, 198.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for the month of February :

Burlington, 25,000 : Total deaths, 31. Annual death-rate, 18.0 per 1000.

Council Bluffs, 35,000 : Total deaths, 22. Annual death-rate, 0.72 per 1000.

Davenport, 34,500 : Total deaths, 28. Annual death-rate, 10.0 per 1000.

Des Moines, 70,000 : Total deaths, 61. Annual death-rate, 9.6 per 1000.

Dubuque, 40,000 : Total deaths, 30. Annual death-rate, 9.6 per 1000.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored. There were reported for four weeks ending March 25th, 474 deaths, of which number 186 were among the colored people, and 109 of children under five years of age. There were 72 deaths due to zymotic diseases, and 50 to consumption. The annual death-rate was 24.34 per 1000.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

The State Board calls upon the municipal officers of every town to see that no vacancies exist upon its local board, and adds :

“ The indications are that this current year there will be great danger of the introduction of cholera into this country. To be prepared we must have an efficient local board of health in every town and city—one that does not wait to be galvanized into life by an epidemic shock. The board must be properly organized, must be in intimate communication with the State Board, must know its powers and duties, must bring its village or city into as cleanly a condition as possible, and finally must have a clear general idea what to do and how to do it promptly, if an outbreak of cholera or other infectious disease occur. The means for learning all this are supplied by the State Board.”

MARYLAND.—C. W. Chancellor, M.D., Secretary, Baltimore.

Baltimore, 455,427 : A. R. Carter, Secretary, reports for March that the number of deaths was 853, a decrease of 42, compared with the corresponding month of March, 1892. Of these 636 were whites and 217 colored—a death-rate of 19.87 per 1000 for the former and 36.67 per 1000 for the latter. The death-rate per 1000 for the whole population was 22.49 ; 32 died from infectious diseases, 101 from consumption, 118 from pneumonia, 29 from bronchitis, 2 from influenza, 21 from Bright's disease ; 271, or 31.77 per cent of the total deaths, were in children under five years of age.

During the month 310 cases of infectious diseases were reported, an increase of 123 compared with the preceding month.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.
Boston, 469,647 : S. H. Durgin, M.D., Chairman.

There were 909 deaths reported in February, of which number 303 were under five years of age. The annual death-rate per 1000 was 23.22. There were 115 deaths from zymotic diseases, and 96 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of March, 1893, compared with the preceding month, the prevailing direction of the wind was southeast (instead of northwest), the velocity was less, the temperature was higher, the rainfall at Lansing was 1.47 inches more, the

absolute humidity was more, the relative humidity was less, the day and the night ozone were less, and the height of ground above the water in the well at Lansing was one inch less.

Compared with the average for the month of March in the seven years 1886-92, intermittent-fever, remittent-fever, erysipelas and pleuritis were less prevalent in March, 1893.

For the month of March, 1893, compared with the average for corresponding months in the seven years 1886-92, the prevailing direction of the wind was southeast (instead of northwest), the velocity was greater, the temperature was higher, the rainfall at Lansing was two inches more, the absolute and the relative humidity were more, the day and the night ozone were less, and the height of ground above the water in the well at Lansing was nine inches more.

Including reports by regular observers and others, scarlet-fever was reported present in Michigan in the month of March, 1893, at one hundred and ten places ; diphtheria, sixty-eight ; measles, sixty-three, and typhoid-fever at thirty-one places.

Reports from all sources show scarlet-fever reported at six places more ; diphtheria at one place less ; measles at six places less, and typhoid-fever at three places more in the month of March, 1893, than in the preceding month.

Detroit, 230,000 : S. P. Duffield, M.D., Health Officer, reports for the month of February 338 deaths, of which number 76 were under five years of age. The annual death-rate was 19.16 per 1000. The deaths from zymotic diseases numbered 57, and from consumption, 24.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

From *Public Health* we quote the following for the month of December, 1892 : Estimated population, 1,301,826. Total mortality, 1010, representing an annual death-rate of 9.40 per 1000.

There were 78 deaths from diphtheria and croup, 37 from scarlatina, 19 from diarrhœal diseases in children, 39 from typhoid-fever, 60 from pneumonia, 19 from bronchitis, and 102 from tuberculosis.

St. Paul, 155,000 : H. F. Hoyt, M.D., Commissioner, reports for the month of February a mortality of 127, represent-

ing an annual death-rate of 8.19 per 1000. The deaths under five years of age numbered 42. Zymotic diseases caused 18 deaths, and consumption, 11.

Minneapolis, 209,000 : E. S. Kelley, M.D., Commissioner of Health, reports for February a mortality of 141, of which 44 were under the age of five years. The annual death-rate was 6.74 per 1000. There were 11 deaths from zymotic diseases, and 8 from consumption.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

Kansas City, 132,716 : E. R. Lewis, M.D., Sanitary Superintendent, reports that during February there were 133 deaths, representing an annual death-rate of 12.02 per 1000.

Deaths under five years of age numbered 35. From zymotic diseases there were 9 deaths, and from consumption, 20.

Reported cases of contagious and infectious diseases numbered 63.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Paterson, 90,251 : J. L. Leal, M.D., reports for February 152 deaths, of which number 65 were under five years of age. The annual death-rate was 20.08. There were 20 deaths from zymotic diseases, and 28 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows :

The average daily death-rate for February was 334 ; that of January was 338, and the average for February for eight years past was 298. In February, 1892, there were 371 deaths daily, which was excessive, on account of 2000 deaths from *grippe* during the month. There is an excess this month above the usual mortality in February, amounting to about 500 deaths, which was due to an increased number of deaths reported from acute respiratory and other local diseases, and was prob-

ably due to the continued prevalence of mild epidemic influenza, deaths from which are reported. The proportion of deaths from zymotic diseases is the same as last month, and the average for February; so also is the mortality in early life. Diphtheria caused 480 deaths, which is the smallest number since September last, and is considerably less than occurred in the early months of 1892. The prevalence of scarlet-fever in the eastern part of the State continues, 198 deaths being reported from it, but there is a much smaller mortality from it than a year ago. The deaths from diarrhoeal diseases are still higher by 50 per cent than is usual at this season. There were 121 deaths from whooping-cough, which is an unusually large number; most of them were in the maritime district. Of 23 deaths from small-pox, 8 occurred in New York, 2 in Brooklyn, 9 in the Kings County Hospital for Contagious Diseases, 3 in Long Island City, and 1 in Gravesend. There were 41 deaths from typhus-fever in New York and 1 in Long Island City. Of the 9353 deaths from all causes reported, 7485 occurred in 149 cities, villages, and populous towns, the death-rate being 20.13 per 1000 population annually. For the rest of the State the death-rate is estimated at 19.85, and for the entire State, 20.07. In the urban portion of the State 14.33 per cent of the mortality was from zymotic diseases; in the rural, 10.82.

New York, 1,860,803: Total deaths, 3105—1050 under five years. Death-rate, 21.72. Zymotic diseases per 1000 deaths from all causes, 164.20. Deaths from consumption, 359. There were 35 cases of typhus-fever in the Riverside Hospital March 4th, since which time, to April 1st, there have been admitted 35 cases. Of this number 13 have died and 42 have been discharged.

Brooklyn, 978,394: Total deaths, 1527—552 under five years. Death-rate, 20.34. Zymotic diseases per 1000 deaths from all causes, 147.37. Deaths from consumption, 166.

Syracuse, 91,944: Total deaths, 149—46 under five years. Death-rate, 19.45. Zymotic diseases per 1000 deaths from all causes, 114.10. From consumption, 16.

Albany, 98,000: Total deaths, 173—60 under five years. Death-rate, 20.66. Zymotic diseases per 1000 deaths from all causes, 98.25. From consumption, 14.

Buffalo, 290,000 : Total deaths, 335—140 under five years. Death-rate, 14.21. Zymotic diseases per 1000 deaths from all causes, 140.30. From consumption, 31.

Rochester, 144,834 : Total deaths, 230—60 under five years. Death-rate, 19.05. Zymotic diseases per 1000 deaths from all causes, 165.20. From consumption, 20.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

The Fourth Biennial Report of the State Board of Health, 1891-92, very appropriately begins with a testimonial to the worth of its late Secretary and Treasurer, Thomas Fanning Wood, M.D., LL.D., from which we quote one paragraph :

“ He was the great apostle of sanitation in our State, and was the father of the North Carolina Board of Health, not alone in the sense of originating it, but also in that of the wise and tender parent who nourished and sustained it during its years of feeble and struggling infancy.”

From the statistical tables we take the following report for 1892 of some of the towns of the State, giving in each case the population, white and colored ; the total mortality, white and colored ; the death-rate, white and colored :

Durham, 5000, 3000 ; 56, 42 ; 11.2, 14.0.

Fayetteville, 2800, 2200 ; 31, 58 ; 11.1, 26.4.

Goldsborough, 2800, 2200 ; 61, 52 ; 21.8, 23.6.

Oxford, 1700, 1600 ; 16, 47 ; 9.4, 29.4.

Raleigh, 8000, 7000 ; 144, 179 ; 18.0, 29.2.

Salisbury, 3000, 2000 ; 35, 36 ; 11.7, 18.0.

Tarborough, 1258, 1112 ; 31, 22 ; 25.4, 19.8.

Wilmington, 10,000, 12,000 ; 159, 277 ; 15.9, 23.1.

Wilson, 2000, 1500 ; 13, 56 ; 15.5, 26.0.

The chief causes of death in the State during the year were : typhoid-fever, 85 ; malarial-fever, 43 ; pneumonia, 147 ; consumption, 197 ; brain diseases, 66 ; heart diseases, 115 ; diarrhœal diseases, 205 ; still-born, 155 ; under five years of age, 710 ; total whites, 786 ; colored, 974.

The Bulletin states that during the month of February there were 125 deaths in the State in an aggregate population of 122,756 (51,372 colored), 53 white and 72 colored, representing

an annual death-rate of 8.9 and 16.8 respectively, and 12.2 for the State.

Typhoid-fever caused 2 deaths ; pneumonia, 24 ; consumption, 20 ; heart diseases, 15 ; and neurotic diseases, 5.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

From the *Monthly Sanitary Record* we get the report of twenty-three cities aggregating a population of 1,039,916, showing a mortality of 1522 in the month of January, representing an annual death-rate of 17.51 in each 1000.

Of this number 456 were under the age of five years. Zymotic diseases caused 222 deaths, and consumption, 166.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,092,168 : M. Veale, Health Officer, reports :

In the four weeks ending March 25th, 1893, there were 1837 deaths, of which number 624 were under five years of age. Annual death-rate, 20.74 per 1000. Deaths from consumption numbered 201, and from zymotic diseases, 228.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the four weeks ending March 25th, 1893, there were 439 deaths, of which 186 were under five years of age. Annual death-rate, 20.93 per 1000. Zymotic diseases caused 75 deaths, and consumption, 38.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of February 487 deaths in a population aggregating 313,094. Annual death-rate, 18.60 per 1000. There were 68 deaths from zymotic diseases, and 40 from consumption.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

The principal diseases, named in the order of their greater prevalence, in the State for the month of February were : Pneumonia, *la grippe*, bronchitis, typhoid-fever, whooping-cough, malarial-fever, consumption, tonsilitis, mumps, scarlet-fever, rheumatism, measles, and cerebro-spinal meningitis.

La grippe was reported in the counties of Chester, Davidson, Dickson, Fentress, Franklin, Grundy, Hamilton, Hawkins, Houston, Maury, McNairy, Montgomery, Rutherford, Van Buren, Weakley, and Williamson. Whooping-cough in Davidson, Knox, Madison, McNairy, Montgomery, Moore, and Shelby. Consumption in Davidson, Dickson, Hamilton, Knox, Rutherford, and Shelby. Mumps in Blount, Hamilton, Knox, Madison, and McNairy. Scarlet-fever in Davidson, Franklin, Montgomery, and Shelby. Measles in Bradley, Davidson, Montgomery, and Shelby. Cerebro-spinal meningitis in Dickson, Franklin, and Rutherford.

Chattanooga, 27,000 white and 13,000 colored : Total deaths, 44—30 of which were colored, and 13 under five years of age. Annual death-rates, 6.21 for the white population, and 27.68 for the colored, per 1000.

Knoxville, 31,273 white and 9112 colored : Total deaths, 50—20 of which were colored, and 16 under five years of age. Annual death-rates, 11.51 white, and 26.33 colored, per 1000.

Memphis, 33,800 white and 27,700 colored : Total deaths, 109—61 of which were colored, and 21 under five years of age. Annual death-rates, 17.04 white, and 26.42 colored, per 1000.

Nashville, 54,595 white, 33,159 colored : Total deaths, 131—63 of which were colored, and 33 under five years of age. Annual death-rates, 14.94 white, and 22.78 colored, per 1000.

TEXAS.—R. M. Swearingen, M.D., Secretary, Austin.

VERMONT.—J. H. Hamilton, M.D., Secretary, Richford.

VIRGINIA.—Paulus A. Irving, M.D., Secretary, Richmond.

We are gratified to learn, through our esteemed contemporary, the *Virginia Medical Monthly*, that this State Board again exhibits symptoms of animation, although for manifest

reasons has lain dormant for twenty years. After much agitation as to the impending necessity for its reorganization under legislative enactment of 1872, Governor McKinney, in March last appointed the following physicians to compose the said Board for the legal term of four years : Drs. Rawley W. Martin, of Chatham ; Robert J. Preston, of Marion ; Paul B. Barringer, of Charlottesville ; James Parrish, of Portsmouth, and the three following residents of Richmond, as the law requires : Drs. Paulus A. Irving, Hugh M. Taylor, and Landon B. Edwards.

These gentlemen met at Richmond, March 23d, and organized by electing Dr. Martin, President, and Dr. Irving, Secretary.

Drs. Parrish, Barringer, and Irving were appointed a committee to draft by-laws, etc., for the government of the Board.

Dr. Edwards called attention to the original law as enacted, 1872, and its re-enactment in 1890. It assigns important, expensive, and laborious work to the Board, yet absurdly provides that the Board shall not be a charge upon the State. Members of the Board are in no way more interested in the results of its deliberations than other citizens ; and it is ridiculous to suppose that seven practitioners who may be willing, for the common good, to devote time, study, and energy to the vital questions involved, will likewise consent to bear the expenses. Executive officers must be given support ; traveling expenses of members and agents in discharge of duty must be paid ; clerk (when needed), stationery, postage, etc., must be provided for ; and of course the services of a bacteriologist, chemist, etc., must be paid.

Dr. Irving moved that a Committee on Finance be appointed. Carried. Drs. Irving, Preston, and Taylor were appointed.

On presentation by Dr. Irving it was resolved that, as the Committee on Health and Sanitation of the Richmond Chamber of Commerce has always manifested an active interest in sanitation, the members of said committee be invited to confer with the State Board to-morrow as to ways and means, etc.

Dr. William A. Thom, of Norfolk, Quarantine Officer of Elizabeth River, etc., by request, made a verbal report of the important proceedings of the recent meeting in Washington,

D. C., of Quarantine and Health Officers. He stated that Dr. Jenkins, as Health Officer of New York City, is the right man in the right place ; he is anxious for light to guide him. He was, however, surprised at positions taken by Dr. Durgin, the Health Officer of Boston, who differed with everybody else in the Convention with reference to danger from rags, etc. As for cholera, Dr. Thom was convinced that more was to be feared at Norfolk from Boston and New York than from ships direct from Europe. He had had occasion to turn back a large shipment of rags from Boston consigned to Richmond, and afterward discovered that the disinfection had been very imperfect. He considered that rags were the greatest source of contamination, and that the best way to disinfect rags was to boil them. The next most dangerous source was immigration, but not so much from the person as from the clothing. He said that Philadelphia had excellent sanitary arrangements, and many of the cities along the coast were well prepared to cope with the dread disease ; but he reiterated that the place for the Board to watch was Boston, Mass.—in spite of the fact that Dr. Durgin pleaded that the rich South wanted to break up the trade in rags of poor Massachusetts. Dr. Thom antagonized, on authority which he cited, the proposition of Koch that the cholera bacillus could only live four days, particularly when dried. As to the relative powers of the Marine Hospital Service and State Boards of Health, he stated that the Federal authorities cannot throw a wall of quarantine around Richmond, for instance, except when requested by Governor McKinney, but they can create a quarantine completely around the borders of the State. Under the present Federal law a vessel can come into port, and can pass over local authority. The law is inadequate at several points.

Dr. Edwards moved a vote of thanks to Dr. Thom for his attendance and remarks, which he thought very timely. Carried.

Dr. Barringer offered the following, which were adopted :

1. There shall be appointed an agent of this Board in each town and village of the State not having a regular local organization of health.

2. That instructions shall be given to each agent as to his duties and as to what he shall do in case of suspected epidemic disease, and as to whom he shall notify.

3. That a general preparatory survey of the water-supply of each of the towns and cities of the State be made with the co-operation of the authorities of said towns and cities.

Dr. Barringer stated that Dr. Tuttle, of the University of Virginia, had kindly offered the use of his bacteriological laboratory and apparatus to the Board, but would not be able to do bacteriological work. Drs. Mallett and Dunnington, also of the University, likewise offered the use of their chemical laboratories and apparatus. Thanks voted.

Dr. Edwards offered the following, which was adopted :

Resolved, That the President appoint a committee of three members to prepare a paper on cholera for the instruction of its agents, and also one for public instruction and advice.

Drs. Edwards, Barringer, and Preston were appointed.

Dr. Edwards stated that some cases of small-pox exist in some of the counties in Southside Virginia, and urged that the profession see that their patients are protected by vaccination.

The following, offered by Dr. Taylor, was adopted :

Whereas the existence of cases of small-pox in sections of this State has been reported to the State Board of Health, through the public press, through reliable physicians, and through the office of Superintendent of Public Instruction,

Resolved, That the officers of the State Board of Health be instructed to render all possible aid in their power to prevent the spread of the disease.

The Board adjourned to meet the next day, at which meeting, March 24th, on motion the Board proceeded in a body to the Governor's office to report their organization, and to ask the Governor for such advice, as to the ways and means for proceeding, as he might suggest. The Governor expressed his most cordial approval of the steps taken by the Board, and promised such financial help from the contingent fund at his disposal as the limited amount not expended would allow, in order to meet necessities or emergencies.

On adjourning from the Governor's office, the Board, according to appointment, met Messrs. Bissell and West, committee of the Richmond Chamber of Commerce, in another office in the Capitol. Dr. W. T. Oppenheimer, President of the City Board of Health, was also present. Free inter-

changes of opinion were made, in which co-operation and assistance were promised.

On motion a committee (Drs. Irving, Parrish, and Edwards) was appointed to draft a formal paper, stating the wishes of the State Board, to be presented to the Committee of the Chamber of Commerce, so as to let it be the basis of a report to the Chamber of Commerce. All of the Chambers of Commerce in this State will be looked to for assistance until the session of the General Assembly of Virginia next winter, when it is expected that the Legislature will provide sufficiently for the efficiency of its own State Board.

At an adjourned conference of the committees of the Board and of the Richmond Chamber of Commerce, March 30th, Drs. Irving and Edwards, of the Board, and Messrs. Bissell, John R. West, J. W. Atkinson, Drs. Charles M. Shields and H. M. Taylor, representing the Committee on Sanitation of the Chamber, were present. After full interchange of opinions, the Committee on Sanitation unanimously recommended the adoption of the paper presented by the Committee of the Board, requesting the Chamber to adopt a plan to raise sufficient funds for the expenses of the Board until the Legislature meets.

The State Board of Health will probably meet again in Richmond during the last week in April.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.

PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

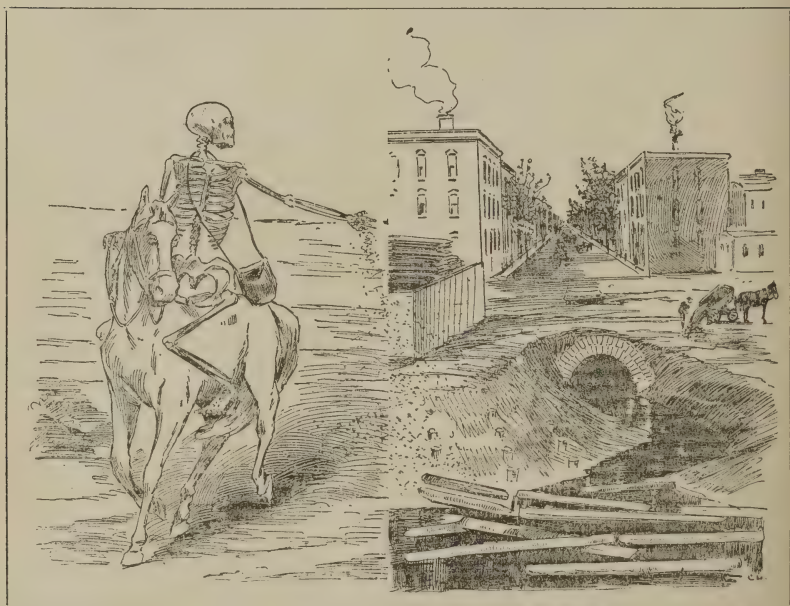
PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 554,713 : Albert B. Martinez, Director-General of Municipal Statistics.

EDITOR'S TABLE.

SANITARIAN, MAY NUMBER, 1893.

ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.



THE above cut represents a section of Bushwick Creek, Brooklyn, the counterpart of Gowanus Canal described in April number, and FATHER MICROBE in clover.

"Creek," as a name for this place, however, is a misnomer. That portion which was a creek thirty years ago, draining a marsh of two or three miles square, is now reduced to a mere mud flat of about half a mile in length by a quarter mile in width, upon which several sewers discharge, and a large quantity of piles and other lumber is accumulated, soaking in the sewage. Meanwhile the flat is in process of being gradually filled up on both sides by foul street-dirt, inso-much that ditches—open sewers, one of them at least ten

rods in length—are excavated through this porous mass of dirt, for as much of the sewage as is not taken up by it to trickle into the middle stream.

The cut accurately represents the outpour of one of these sewers into the mud and lumber at its mouth. This sewer is about two hundred yards distant from a surface railroad where it crosses the bridge-covered stream of sewage, which flows into a much larger quantity of lumber, spread over an acre of the mud at least, upon which it is grounded at the head of the cove. A much larger sewer than the one here represented opens directly under another surface railroad-bridge farther up the flat.

The stench of this enormous mass of sewage-saturated dirt, even now—while the weather is cool—is well-nigh indescribable. What it will be on the setting in of hot weather, when active putrefaction sets up, can only be imagined. So, too, the fruitfulness of such a field for the nurture of disease germs.

“HOW CAN CHOLERA BE PREVENTED?”—*The* “ATTACK UPON BROOKLYN.”

At a meeting of the New York Medico-Legal Society, held in Brooklyn, two weeks ago, to discuss this question, Dr. A. N. Bell, among others, was called upon for remarks. In a brief report of the proceedings in the *Brooklyn Citizen*, the next day, Dr. Bell is said to have “caused some amusement by *his* attack upon the city of Brooklyn”—the *Citizen* reporter evidently mistaking the relation of the exposure to the attacking party.

The reader will not fail to observe that the attack is a very grave one and of long standing, illustrating the patience of the people, but of a nature so aggravating, at the present time, pending the advent of cholera—as an accession of strength to the officials in command of the siege—that no time should be lost by any *true* citizen in an effort for effectual resistance.

Dr. Bell's remarks were, in substance, as follows :

“The cholera can only be prevented by not allowing it a leg to stand on.” He then referred to a meeting at his own house a little less than forty years ago, to consider the importance of creating a board of health more competent than a

committee of the Board of Aldermen, who at that time constituted an apology for one. At that meeting he took occasion to describe some of the filthy conditions that had fallen under his observation which he regarded as promotive of disease. A reporter being present, his remarks were in part published the next day ; upon which one of the wealthiest of his friends, who was present at the meeting, promptly called upon him to express his fears lest the discussion of such questions should injure the reputation of the city, and begged that he would not pursue the subject.

With this introduction Dr. Bell expressed his gratification at the presence of some of the city officials in the audience, and hoped that he should not offend them by the declaration that, while cholera was well known to depend upon filth for its existence, was conveyed by filthy passengers on filthy ships, and ever liable to be transplanted to filthy cities—notwithstanding—*Brooklyn is to-day disgustingly filthy* from one end to the other. This, he said, is well proven by the existence of an epidemic of diphtheria, scarcely less identified with filth than cholera itself, though, perhaps, more likely than it to expand beyond the boundaries of filth, among cleanly people. This filth disease has prevailed here for ten years, with an average of 767 deaths yearly ; while the number of cases has probably been ten times greater. The broadcast filth to which, he said, he had repeatedly tried to call public attention, by what he had written and by special report to the Health Department, was the enormous mass of stable filth throughout the city ; the manner in which it is stored in vaults, piled in areas outside the walls of the stables, and, while in a state of putrefaction, delivered across the sidewalks to carts in the streets—wreaking its mephitic gases all over the neighborhood. The people apparently have yet to learn that horse manure is excrementitious filth, equally liable as the excrement of other animals and of mankind, when stored in vaults or piled up, to putrefy and give off poisonous gases, and when handled under such circumstances dangerous to the vicinity ; and under all circumstances favorable to the propagation of disease germs.

He next referred to another privileged class of people, whom he compared to the stable proprietors—the filth culti-

vators along Gowanus Canal, Newtown and Bushwick creeks, who are urging the improvement of their property at public expense ; while the city authorities, purblind to the dangerous emanations from the enormous mass of sewage-soaked and putrefying logs, which have been packed in from year to year, for a generation, to stay-up the muddy banks of these stench rivulets, seem never to have heard of *stone*, as the proper material which the owners of such water fronts should be required to use instead of putrid wood, if they had any regard for the public health. Moreover, he added, the city officials are not only regardless of these disease-culture beds and foul emanations therefrom, but they are contributors to them ; not merely onlookers, without lifting a hand to prevent the murder of the people, but active aiders and abettors. In evidence of this he referred to the present aspect of Bushwick "creek," a mere mud flat, upon which several sewers discharge, saturating piles of lumber there stored, and the daily addition of putrescible matter—promotive of epidemic diseases.

THE NUISANCES OF THE CROTON VALLEY WATERSHED are so cogently exposed in the leading article of this number, that the question will readily arise to every intelligent reader, What can be done with them ? Radical measures are called for. All attempts to dispose of the filth there accumulated and constantly accumulating, on the ground, or under the surface, are at the imminent risk of contaminating the water-supply. It is all *combustible*—it should be cremated.

The burial of the dead in the valley should be wholly prohibited. Knowledge of the subsoil water currents there leaves no room to doubt that the liquid and gaseous products of putrefying human bodies are constantly leaching into the tributaries of the Croton. Considering the quantity of such matter and the fresh accession to it daily, and the great draught upon the water, it is at least very doubtful whether the exposure of such substances to the oxidizing influence of the water is long enough to dispose of them. The protection of the water-supply is of too much importance to take any such chances.

Sanitary knowledge is equal to the task of protecting the water-supply, and it should be commanded at whatever cost.

THE NATIONAL SANITARY CONFERENCE of officials of the State boards of health and quarantine of the United States, Canada, and Mexico, the U. S. Navy and the U. S. Marine Hospital Service, at the Fifth Avenue Hotel, New York, April 5th-7th, has been the most signal effort of the month to fix the responsibility for the expected advent of cholera upon the port of New York.

But the object of the meeting, as announced, was :

1. Report of National Quarantine Commission, Dr. Irving A. Watson, New Hampshire, Chairman ; Dr. Peter H. Bryce, Ontario, Secretary.

2. (a) What are the present conditions, as to equipment and efficiency of administration of the quarantine stations on the seaboard of the United States, including improvements to be actually available during the coming season ? (b) What is to be the practice as to the inspection of persons and the disinfection of baggage, and what is the exact practical meaning of certificates issued to passengers and immigrants as to themselves and the disinfection of their effects ? (To be responded to by port quarantine authorities of the United States.)

3. The same questions as to Canadian ports. (To be responded to by port quarantine authorities of Canada.)

4. The same questions as to Mexican ports. (To be responded to by port quarantine authorities of Mexico.)

5. (a) What available plan can be agreed upon which will pass a properly certified passenger or immigrant and his baggage and effects from his starting point in the United States, Canada, or Mexico, to his destination without unnecessary interference or delay. (b) Is it necessary and practicable to disinfect the baggage of all immigrants, and require certificates of disinfection ?

6. In the emergency of an epidemic, would it be practicable to conduct a uniform system of inspection service at the various State lines, as against any given infected district, by means of which co-operation and mutual protection would be secured ?

Propositions Nos. 5 and 6 will be referred to committees, appointed at the opening session, and requested to report to the Conference in time for its action before adjournment.

7. (a) What has been done by each State Board of Health to protect the territory under its jurisdiction against cholera ?

(b) What quarantine powers has each Board? (c) What are the present conditions in the principal cities and towns of each State? (This will be responded to briefly, preferably in writing, by each State Board.)

8. In the event of cholera in this country, what requirements should be made of transportation companies to prevent spread of the disease? Dr. C. A. Lindsley, Dr. E. P. La Chapelle, Dr. F. W. Reiley, Dr. L. F. Salomon, Dr. R. M. Swearingen.

DR. J. N. McCORMACK, *President*,
DR. C. O. PROBST, *Secretary*,
DR. H. B. BAKER, *Treasurer*,
Executive Committee.

The representation was as follows :

Alabama, Dr. Jerome Cochrane ; Michigan, Drs. H. B. Baker, Hiram Mills, and Frank Wells ; Illinois, Drs. F. W. Reilly and J. H. Rauch ; Louisiana, Drs. L. F. Salomon and F. Patton ; Kentucky, Dr. J. N. McCormack ; Ohio, Dr. C. O. Probst ; Wisconsin, Drs. J. T. Reeve and O. B. Wingate ; New Hampshire, Dr. Irving A. Watson ; Rhode Island, Dr. Charles Fisher ; Tennessee, Dr. J. D. Plunkett ; Minnesota, Dr. C. N. Hewitt ; Connecticut, Dr. C. A. Lindsley ; New York, Dr. Lewis Balch ; Pennsylvania, Drs. Benjamin Lee, McClelland and Davis ; Vermont, Drs. Hamilton and Sherwin ; Missouri, Dr. Atkinson ; Delaware, Drs. E. W. Cooper and I. S. Vallandigham ; Maine, Drs. A. E. Young and Charles Smith ; South Carolina, Dr. R. Lebbey ; Indiana, Drs. C. N. Metcalf and S. B. Taylor ; New Jersey, Drs. Franklin Gauntt and A. C. Hunt ; West Virginia, Dr. N. D. Baker ; Iowa, Dr. F. M. Reynolds ; Georgia, Dr. W. H. Brunner ; North Carolina, Drs. H. T. Bahnson, R. H. Lewis and G. G. Thomas ; Canada, Dr. Frederick Montizambert ; Province of Quebec, Drs. Elzier Pellitier and E. P. La Chapelle ; Marine Hospital Service, Drs. Walter Wyman, Kinyoun and Godfrey ; United States Navy, Dr. Albert Gihon.

Dr. Bryce, Secretary of the National Quarantine Commission, not being present when the proceedings began, Section 2 (a) of the programme was taken up first. A particularly remarkable feature of the reports under this head was, with few exceptions, the general excellence of the sanitary condition

and equipment. Most of the States had made generous appropriations, to be used if necessary, and pecuniarily they were ready for the conflict.

Dr. Salomon, of Louisiana, explained the methods employed at the quarantine station at New Orleans. It was as well equipped to meet an epidemic, he claimed, as any seaboard point of entry in the country, and many improvements in the fumigation of vessels carrying immigrants were under consideration.

Dr. Cochrane, of Alabama, reported that the general arrangements at Mobile were the same as those at New Orleans.

Dr. Brunner, on behalf of Georgia, said that while the State had no board of health, arrangements had been perfected for a complete quarantine system in event of an epidemic. Plans for the use of Black Beard Island as a quarantine for passengers of infected ships would be completed by June 10th.

Dr. Lebby, of South Carolina, said they were prepared to meet cholera at Charleston, and would not relax efforts to make an effective quarantine.

Dr. Smith, of Portland, Me., outlined the methods employed there. He said all immigrants were provided with personal certificates giving requisite knowledge to enable inspecting officers at points of destination to judge of their health at the time of arrival.

Dr. Montizambert described the quarantine in Canada. There is an outer station one hundred and eighty miles below Quebec, another thirty miles below, and finally one at the pier at the east end of the harbor. All these stations are thoroughly equipped. There are also quarantine stations at Halifax, St. John, William Head, Sidney, and Vancouver. All the officers are efficient, he said, and will join with their brother officers across the border in protecting the people.

Dr. De Veaux, of North Dakota, referred to immigration into his State *via* Canada, and said that undesirable immigrants were being dumped into his State without proper disinfection or personal certificates. Dr. Montizambert admitted that Dr. De Veaux was right, but said it was impossible to quarantine vessels from non-disinfected ports. It was mostly from such ports, he said, that the immigrants complained of by Dr. De Veaux had come.

Surgeon-General Wyman, of the Marine Hospital Service, reported particularly on the coast line of the Gulf of Mexico. The improvements included a steam disinfecting chamber and a furnace at Dry Tortugas. A disinfecting station had also been established at Cape Charles, and ships stationed near Old Point Comfort that will accommodate one thousand persons, with facilities for disinfecting. Against this showing Dr. Wyman deplored inadequate facilities to prevent the ingress of cholera at Hampton Roads. He hoped, however, that the Government would provide a place for infected vessels half way up Chesapeake Bay. The Government has steam-fumigating vessels at Delaware Beach, with sulphur dioxide and bichloride of mercury tanks. Outside of the necessary additions mentioned every facility offered by the Government to keep cholera out of the country was complete.

At the conclusion of the morning session committees were appointed, to report at 7.30 in the evening, as follows :

To prepare a statement as to the treatment of immigrants and their effects, with a certificate as to their treatment, for the benefit of health officers of the interior : Drs. I. A. Watson, Walter Wyman, J. H. Rauch, Frederick Montizambert, H. B. Baker, L. F. Salomon, J. D. Plunkett, C. O. Probst, and F. H. De Veaux.

To prepare a statement as to the practicability of conducting a uniform system of inspection service at various State lines in the emergency of an epidemic, and what requirements should be made of transportation companies to prevent spread of cholera in the event of its coming here : Drs. Jerome Cochran, C. N. Hewitt, F. W. Reilly, C. N. Metcalf, E. P. La Chapelle, Benjamin Lee, C. A. Lindsley, J. T. Reeve, and John Kinyoun.

Dr. Jenkins, Health Officer of the Port of New York, having arrived just as the morning session was about to adjourn, was requested to confer with the committee appointed on the Treatment of Immigrants and their Effects. He presented his ideas of a pass or personal certificate for all immigrants, and explained that with the proper punch-marks every city or town in the country would be protected in receiving the new arrival. This card covers port of embarkation, inspection on boarding vessel, New York Quarantine, immigration inspection.

tion, United States detention, steamship surgeon's inspection, and vaccination.

Dr. Irving A. Watson, of Concord, N. H., Chairman of the National Quarantine Commission, also submitted a passport certificate. It carries on its face the name of the immigrant, and is on the same principle as Dr. Jenkins's card, so far as punch blanks are concerned, and with the addition that it can be punched by inspectors at State lines from the port of arrival to the point of destination.

The committees devoted the afternoon to the two certificates, while the delegates visited various points of interest in the city.

At the evening session the reports of the committees were read by Secretary Probst. The first was :

" *Whereas*, Article 14 of the immigration regulations of the United States provides that each immigrant or head of a family prior to or at the time of embarkation shall be given a ticket on which shall be written his or her name, a number or letter designating a list, and his or her number on the said list, for convenience of identification on arrival,—

" *Resolved*, That for the purpose of assisting the Quarantine officers and health inspectors said tickets should also have printed thereon figures or letters or words which shall be hereafter provided ; that the ship's surgeon or agent shall indicate by punch or otherwise on said ticket the information hereafter to be specified ; that the Quarantine officers at the port of arrival and the inspecting officers at the several inspecting stations in the interior States shall indicate in like manner the same information ; said ticket to be carried by the immigrant from the port of embarkation to the point of destination, and then delivered to the proper health officers, provided that this provision does not conflict or interfere with the rules or regulations of the Treasury Department.

" *Resolved*, That the secretary of the conference be directed to forward this resolution, with the necessary forms, to the Secretary of the Treasury."

The second resolution under the report of the committee, proposed by Dr. Montizambert, was as follows :

" *Resolved*, That steamship companies shall be furnished with blank forms to be filled out by the surgeons on the voyage,

dividing passengers into lists by States or provinces to which they are destined, such lists to be handed to the Quarantine officer, to be by him punched with such information as derived at Quarantine ; this to be enclosed in an envelope with printed address of the executive officer of such State or provincial Board of Health and at once posted, the State or provincial officer receiving it to notify by telegraph, if necessary, the local health officer into whose jurisdiction each family or person is going. Some such form as the following is suggested :

“ Steamship — from — date — place — whence started — name — age — destination — (fullest details)—diseases — isolated cases.”

This was carried unanimously.

Upon motion of Dr. Salomon it was recommended that “ during the presence of cholera in Europe the disinfection of the baggage of all immigrants destined for this country shall be required, unless disinfected at port of departure, with certificates showing manner of disinfection pasted on the baggage.”

Adopted.

The report of the committee on Sections 6 and 8 was :

“ It is not believed that it would be practical to conduct a uniform system of inspection service at State lines as against any given district infected by an epidemic disease, but it is urged that it is the paramount duty of every health organization to exercise the utmost vigilance for the protection of its own territory. In this direction lies the practical protection of the whole country. To the extent, for example, that New York preserves herself from epidemic disease she protects her neighbors.

“ As to the limitation of an outbreak it is believed that the best and most effective work for the prevention of the spread of an epidemic disease can be done at the point where the outbreak occurs. The early notification of State and provincial boards of health of the existence of communicable diseases in any State or province, as agreed upon at the conference at Toronto, is also urged upon the members of the conference as a measure of great value.

“ It is believed that transportation companies should be re-

quired—in event of cholera appearing in this country—to refuse the transportation of persons and things from an infected district, except under the direct supervision of the health authority of such district. It also is recommended that transportation companies, both by land and water, secure and maintain the highest practical sanitary condition of equipment, stations, grounds, latrines, water supplies, etc., not only during the existence of cholera, but as a highly effective method of preventing the introduction and spread of communicable diseases.

“Your committee further venture to offer the following proposition :

“That no person be allowed to embark on board a vessel sailing from abroad to this country unless he or she furnishes satisfactory evidence of vaccination within the previous seven years, and that no person be allowed to land in this country until he or she has furnished to the quarantine officer evidence that such vaccination was successful, or unless such person present physical evidence of a previous attack of small-pox.”

This report, being incomplete, was referred back, or, rather, to a new committee of five—Dr. Vaughan, of Michigan ; Dr. Rauch, of Illinois ; Dr. Patton, of Louisiana ; Dr. Atkinson, of Missouri ; and Dr. La Chapelle, of Quebec—for further consideration.

Reports under Section 2 were resumed.

Dr. Jenkins reported with regard to the New York Quarantine :

“We have decided that it is necessary to enlarge the disinfecting apparatus at Hoffman Island, also the dock facilities and the building for receiving immigrants. No improvements are necessary on Swinburne Island. I do not think the use of Fire Island will be necessary this summer. We have several steamboats and the old U. S. ship *New Hampshire*. I think we are in condition to meet all emergencies. Governor Flower has placed at my disposal an emergency fund of \$150,000. This will help us out, but I do not think that the proposed improvements can all be effected in time for the coming hot season. With regard to the preparation of the Health Department of the city in the event of cholera, you can see and appreciate for yourselves to-morrow afternoon, in the con-

templated visit with Dr. Edson to North Brother Island. And I take this occasion to invite you to accompany me on an inspection of the Quarantine establishment on Friday."

Dr. Taylor, of Indiana, reported that State particularly exposed, because fully 80 per cent of the visitors to the World's Fair will pass through it. The last Legislature recognized the danger, and appropriated \$80,000 to meet it. Complete inspection, purification of the water supply, and especial attention to all sanitary provisions are recommended. Almost unlimited powers have been given to the State Board of Health.

On Thursday morning reports under Section 2 were continued.

Dr. Lindsley, of Connecticut, reported that that State had no quarantine authority. The State Board has done much to remedy the old-fashioned notions which prevailed ten years ago. There is still much room for improvement.

Dr. Lee, of Philadelphia, reported that special instructions have been issued to local boards and transportation companies of Pennsylvania. An order has been issued that transportation companies landing in or transporting through the State cases of cholera or cholerae will be considered contraband of quarantine.

Dr. Cooper, of Delaware, reported that State fully equipped. Laws have been enacted creating local boards of health. They have supreme authority.

Dr. Hewitt, of Minnesota, reported 1639 local boards of health in the State, operating under compulsory laws. "Since 1891 we have been receiving notifications whenever immigrants have been started from ports of landing for our State. The Legislature has recently increased our powers. We have an inspection of all immigrants. A law has been passed compelling railway companies bringing infected immigrants to transport them free of charge to isolated localities."

At 2.30 P.M. the delegates to the conference went to the foot of East Twenty-third Street and took the tug *Franklin Edson* to visit North Brother Island, to examine the methods in use there by the Board of Health. They were accompanied from the city by Sanitary Superintendent Roberts and Dr. Hubbard, Resident Physician at North Brother Island.

Upon reaching the island the delegation went through the new pavilion for the reception of patients and inspected the apparatus used for disinfecting purposes. They did not pass through the typhus-fever and small-pox wards.

At the evening session Dr. Vaughan, chairman of the committee, to whom was referred the report on Sections 6 and 8 for further consideration, reported as follows :

" A uniform system of inspection service may be carried out, but the committee does not believe inspection should be defined by State lines. If cholera comes, all outgoing trains should be inspected. Medical inspectors should accompany each train, and when necessary, these inspectors should be appointed by and act under the direction of the Marine Hospital Service.

" If cholera patients are found on any train, the names and addresses of other persons on the train should be telegraphed to the authorities at places of their destination. The railroad companies should provide special accommodations for those who are sick. Names of physicians along the lines of railroad who may be called in by the inspectors should be provided. The cars should be especially examined and treated with all sanitary precautions. "If a car were contaminated it should be removed from the train as quickly as possible.

" Similar regulations should be made for river and lake transportation routes."

This report at once became the subject of an animated discussion.

" I object," said Dr. Metcalf, of Indiana, as soon as the report was under consideration, " to putting this service or any part of it under the authority of the National Marine Hospital Service."

" The wording," said Dr. Vaughan, who drew the report, " is the same as that of the national quarantine law."

" I don't believe that law is constitutional," replied Dr. Metcalf. " We don't propose to be governed by the national authorities."

Dr. Hewitt, of Minnesota, then made a speech :

" Did anybody ever know a case where the Marine Hospital Service interfered with the State Health Board, unless it were asked to do so?" he asked. " I challenge any one to

find a case. We should deal with this question in a common-sense way. This report is full of platitudes. It has nothing in it but platitudes, and we don't want them. It is like telling us that two and two make four. It doesn't amount to anything. It is too vague, too indefinite, too weak, and too full of platitudes from 'stem to gudgeon.' Some of the States want the Marine Hospital to take charge of the work because they admit they can't do it themselves."

"Name the State!" "Name the State!" came from two or three doctors at once.

"It strikes me," said Dr. Vaughan, "there was a case in New York last year, when the National Government interfered against the wishes of the State authorities. There was loud outcry, if I remember, when the National Government gave orders affecting quarantine. These rules are essentially the same as those which were in force in Germany last year, adopted by the Imperial Board."

"Which were unsuccessful," said Dr. Hewitt.

"I think they were successful," said Dr. Vaughan.

"Not a bit of it," replied Dr. Hewitt. "As against the Imperial Board, the royal rumbling, tongue-disturbing nomenclature, I offer the example of England, whose quarantine regulations were spoken of this morning."

The report was then taken up section by section, and much time was consumed in a futile attempt to determine what should constitute "an epidemic." More time was devoted to discussing who should determine when it was "necessary" for the national authorities to act, and that was not settled.

President McCormack compared the quarantine system in this country with that of England, and said it would require the expenditure of many millions of dollars to make the effectiveness of the system here equal to that of England. He attempted to solve the disagreement on the section under discussion by inserting the words "in the absence of an active Board of Health." And more time was devoted to the question of who should say when a Board of Health was "active."

This was not settled, and finally, after the amendment had been voted down, the whole section which referred to the Marine Hospital Service was stricken out.

An amendment was added in favor of compelling railroad

companies, in case of epidemic, to place disinfecting apparatus in all car closets, and then the report was adopted.

Following this the rest of the States were heard from as to their own facilities and the action of the boards of health up to date.

Dr. A. C. Hunt, of New Jersey, reported that State so situated that it is largely dependent on the regulations at Philadelphia and New York. "An inspection service has been established in Hudson County, through the courtesy of the Surgeon-General of the Marine Hospital. The authorities in Pennsylvania and in New York have been asked to co-operate. Ample authority is given to both local and State boards of health. Last summer Governor Abbett placed sufficient funds at our disposal. So far as the large cities are concerned I think we are able to meet any emergency."

Dr. McCormack said that Kentucky would be glad of aid from the Marine Hospital Service. Dr. Atkinson, of Missouri, said there were but eight or nine local boards of health in his State. Violations of the health laws were common. The Legislature appropriated too little money.

Dr. Patton, of Louisiana, said the cities there were not in very good sanitary condition. The street level in New Orleans was below the river surface, and the sewage system was bad. The Board of Health, however, was making strong efforts to bring about a better state of things.

VISIT TO ELLIS ISLAND AND QUARANTINE.

Friday was an exceedingly disagreeable day for a visit to the quarantine establishment, on account of a continuous rain. But besides the desire of the delegates to inspect their chief reliance for keeping the cholera out of the country, which was in itself a sufficient inducement, the commissioners of quarantine had kindly provided a commodious steamer, with all needful appurtenances for bodily comfort, insomuch that this day's session was not only well attended, but—if we may be permitted to judge by the free expression of opinion—the most profitable one of the conference. Nearly two hours spent at Ellis Island, under the polite guidance of Dr. Wheeler, witnessed the whole process of receiving and discharging immigrants, the manner of dealing with their effects, and the

admirable adaptation of the institution to its purpose. There was an evident effort by a few of the visitors to discover something with which they could find fault, or upon which they could suggest an improvement. But all such attempts were so readily met by Dr. Wheeler's thorough familiarity with the detail and quickness of explanation, that the would-be fault-finders straightway became observers. The general impression was satisfaction.

Dr. Jenkins was taken aboard at his residence—Staten Island. The next place of landing was at Hoffman Island. Here an hour was spent in inspecting the buildings and the work in progress for improving the disinfecting apparatus. The general expression with regard to this structure and its appurtenances was their inadequacy, not considering the sufficiency of area for an additional building to each, nor the increase in the roominess of those already constructed by an additional story to each, as now contemplated, which would more than double the present capacity and make this station sufficiently commodious for the temporary care of at least three thousand persons—thrice as many at one time as its whole twenty years' use has ever required, excepting last year, as the result of the President's proclamation, which there is no reason to anticipate will ever be repeated. Moreover, as before explained by Dr. Jenkins, still other means are in reserve—the old U. S. ship *New Hampshire*, which would accommodate a thousand, and other vessels if necessary.

But some of the gentlemen seemed to measure the size of a quarantine plant by the capacity of the New York Bay or the ocean beyond.

The disinfecting apparatus, as now planned and in process of reconstruction, as described, met general approbation. It will be amply sufficient to disinfect the personal effects of two or three thousand immigrants in one day if required.

Swinburne Island, which was next visited, and its appurtenances—hospital, post-mortem room, mortuary, crematory, administration building, and appurtenances—appeared to be in the highest degree satisfactory.

On the return trip, the conference was for a few minutes called to order, and Drs. Patton, Plunkett, McCormack, La Chapelle, Probst, and Wells were appointed a committee to

prepare resolutions on quarantine arrangements as found in the lower bay, to report at the evening session.

The committee reported as follows :

“ *Resolved*, That it be expressed as the sense of this conference, representing the health authorities of the United States, Canada, and Mexico, that the importance of having maintained at the port of New York a thoroughly efficient system of quarantine against imported pestilence is so great as to warrant the conference in offering certain urgent recommendations ; therefore,

“ Inasmuch as the State of New York has assumed the responsibility of carrying on the important work, upon the equipment and efficiency of which other States must of necessity largely depend, the representatives of those States and communities feel themselves justified in urging that the present plant and appliances for the performance of quarantine at Hoffman Island be so enlarged and improved as to conform with the highest standard of modern improvement.

“ The conference recognizes the fact that the present quarantine administration has labored under the disadvantage of having to operate a system burdened with grave, inherited defects, and full credit is accorded for such good work as has been done by the present active quarantine officer. The conference is informed that several important improvements are contemplated, and that as soon as possible these will be instituted. It is intended to increase the area of Hoffman Island, the observation and disinfecting station containing the principal quarantine plant, from two acres to about ten.

“ The facilities for the disinfection of baggage and bedding are deemed entirely inadequate. The conference is informed that an extension of the same to about nine times its present capacity is contemplated, but in view of the constant menace from cholera the conference urgently recommends that these facilities be increased immediately.

“ If practicable, it is also recommended that a wharf in deep water be built for the better accommodation of vessels under treatment at Hoffman Island.

“ The supply of drinking water in cisterns is such as to render its contamination at the stations possible, and the necessity for a better arrangement is imperative.

“ It appears that no disinfection of immigrants' baggage other than on vessels has been practised at the port of New York since last October, and this conference formally protests against the continuance of this neglect. The conference also deems it its duty to report that the certificates at present issued by the United States officials, as represented by Dr. Wheeler of that service, have no value whatever in guaranteeing any previous inspection or disinfection of immigrants' baggage, as this station is not designed for quarantine work.

“ The hospital at Swinburne Island is well equipped, and the crematory attached to same is one of approved construction.”

The committee failed to recognize, or forgot, that, in addition to the water tanks of Swinburne Island, there is an efficient *condenser* of distilled fresh water from salt, equal to five hundred gallons daily whenever required ; that supply of drinking water at Hoffman Island hitherto has been from New York, taken down by water boats, and that with regard to the future, a contract has already been made with a water company for a constant supply by water pipes from a pure source on Staten Island.

The suggestion “ from two acres to about ten ” was evidently derived from some one not familiar with the subject.

The present surface area of Hoffman Island is *two and seven eighths* acres. The two main buildings, for quarters, are of two stories, and measure, respectively, 141 and 98 feet in length by 64 and 60 feet in width. The surface area of Swinburne Island is two acres.

The foundations of these islands began in seven to ten feet depth of water at low tide. To increase the area of either one to ten acres would extend into almost twice that depth, and involve an expense to the State, as compared with other facilities at command afloat, so great as to render the proposition preposterous. Doubtless a more thorough knowledge of the conditions and resources of this plant and a comprehensive estimate of its utility, measured by results, would have secured a less qualified endorsement.

The present structures—*islands and buildings*—cost the State about \$1,500,000. Notwithstanding, a comparison of the

utility of this plant in the protection of the health of the State and the country at large, in the promotion of commerce generally, and its economy to the merchants of New York in particular, during the twenty years since it was first put to use, with the detention system practised during the corresponding period immediately preceding, would not only justify the outlay, but abundantly demonstrate that it has proven to be incomparably the most effective quarantine establishment in the world.

SANITARY COUNCIL OF THE MISSISSIPPI VALLEY ASSOCIATION.

Before the delegates started down the bay a meeting of this association was held. Dr. J. D. Plunkett, of Tennessee, acted as chairman.

Dr. Rauch stated the object of the meeting to be to secure the re-establishment of the immigrant inspection service, which had been found so useful in the small-pox epidemic of 1881-83, the scope of the service during the present emergency to be in co-operation with State and municipal health authorities. This resolution was passed :

" Resolved, That the Secretary of the Treasury be formally requested by the Sanitary Council of the Mississippi Valley to authorize the United States Marine Hospital Service to establish a system of immigrant inspection service with especial reference to Asiatic cholera, and substantially on the lines of the service maintained with such beneficial results in 1882."

Referring to latest advices of the recrudescence of Asiatic cholera in Russia and other parts of Europe, and to the effectiveness of a total suspension of immigration in such an emergency as now threatens, Dr. Reilly (Illinois) offered this resolution :

" Resolved, That the Secretary of the Council is authorized and instructed to address a request, on behalf of the Sanitary Council of the Mississippi Valley, to the Surgeon-General of the United States Marine Hospital Service asking that he forthwith make or cause to be made an investigation of the cholera situation in Europe, and especially in Russia, and if the results of the investigation are such as to warrant the prohibition, in whole or in part, of immigration from any

European country or place, the facts be certified to the President of the United States, with a recommendation of prompt action by the executive under Section 7 of the Quarantine Act of February 15th, 1893."

The Sanitary Condition of Chicago.

The council met again after the trip to the lower bay, and listened to a report from Dr. F. W. Reilly, Secretary of the State Board of Health of Illinois, on the sanitary condition of Chicago, with reference to the approaching World's Fair.

Dr. Reilly said at the outset that the Illinois State Board of Health did not share in the general apprehension and dread of Asiatic cholera. He continued :

" Study of the history of the disease since its first introduction, in 1832, has led the Board to the conclusion that cholera has lost its pre-eminent importance as a factor affecting the public health of the United States. Such study reveals the fact that each successive epidemic has invaded a relatively lesser area of territory, notwithstanding the increased facilities for intercourse and communication, has caused absolutely fewer deaths and has been more readily and certainly controlled. It shows that, whereas the epidemic which began in 1848-49—concerning which the first authentic records of cholera in Chicago are to be found—presented a death-rate of one in every thirty-three of the population of that city, the mortality diminished in each successive visitation until in 1873—the last epidemic in this country—the death-rate was only one in seven thousand of the population. The State Board of Health holds, therefore, that the measures of protection against the more generally prevalent and frequent diseases are sufficient for protection against Asiatic cholera.

" What the Board has done with direct reference to the present emergency has been to push with increased vigor during the past ten months the system of sanitary inspection of houses and premises and the work of municipal sanitation instituted in 1885 by Dr. Rauch, the former efficient secretary of the Board. The practical results of this effort vary, of course, with the degree of intelligence of the various communities. Illinois is neither very much better nor very much worse in that respect than any other State of equal age. The

State is by no means a sanitary Utopia, but its sanitary condition has demonstrably improved during the last decade. It was estimated on April 1st that over 340,000 house-to-house inspections had been made within the previous ten months, and on that day a requisition for 7000 house-to-house visitation blanks for use in the city of Quincy was filled from the secretary's office, showing that the work was still being pushed to a satisfactory extent.

"Supplementing this abatement of nuisances and general sanitary improvement, the Board has endeavored to educate the public into a knowledge and belief that Asiatic cholera is largely a bugbear; that, given an unpolluted water supply, proper disposal of excreta, and other cleanly conditions of life, there is less to be feared from this disease than from many other causes; while such cleanly conditions improve the general health and limit the prevalence of other diseases. It has been attempted to disabuse the public mind of the belief that cholera is a contagious disease and to inculcate the axiom of Ernest Hart and Florence Nightingale; to wit, that one may eat cholera or drink cholera, and so contract the disease; but one cannot 'catch' cholera any more than one can 'catch' a broken leg. Such knowledge should do much to prevent panic in the presence of the disease and to allay fear, which is acknowledged to be a potent predisposing cause of the disease.

Arriving Immigrants Inspected.

"Attempt has also been made in this connection to prevent the sensationalizing of press reports concerning cholera; in other words, that, while it is possible we may have an occasional case of Asiatic cholera in this country during the coming season, the effect of such cases should not be aggravated by an epidemic of newspaper cholera. It may be added that a system of inspection of immigrants and their effects, arriving in the city of Chicago, has been maintained by the Health Department of that city since September last, and that the State Board of Health has aided in such inspections and in the necessary protective measures connected therewith.

"During the past fifteen months a great amount of effective sanitary work has been done in Chicago. Its Health De-

partment, although hampered by a vicious system of political control of its employés and by inadequate appropriations, has made a record in this period which is more than creditable. Its probable efficiency in the event of an outbreak of cholera may be inferred from its unparalleled record in dealing with small-pox. Notwithstanding the frequent introductions of this disease in 1892, in no instance was there a spread of the contagion from any given first case to another person. As to cholera, the department has made ample provision for isolation, disinfection of premises, surveillance of those exposed and care of the patient; and there is no obvious reason why it should not be as successful in dealing with a cholera outbreak, should such unfortunately occur, as it has been in dealing with outbreaks of small-pox.

Chicago's Water Supply.

“The Chicago water supply, concerning which there was serious ground for apprehension until the completion of what is known as the four-mile tunnel, is now claimed by competent experts to be the best of any large city in the world. To this general claim, however, exception must be made as to the supply furnished to the Hyde Park district. Owing to unavoidable delay in the extension of the Hyde Park tunnel to the projected distance, this supply is at times and in varying degree affected by shore contamination. To guard against this danger, all the water furnished from this source to the World's Fair grounds is sterilized by the Pasteur process; a supply from the Waukesha Springs has been piped to the grounds and vicinity, and the feasibility of extending a connection between the Hyde Park system and the four-mile tunnel supply is now being investigated. If this can be done the Hyde Park tunnel supply could be abandoned, pending the completion of the tunnel extension.

“Before leaving this topic reference should be made to the favorable report of the London *Lancet's* special commission on the water supply of Chicago. Although the investigation is understood to have been made last autumn, since which time there has been much improvement, the commission reports that ‘ill-informed rumor has magnified the faults of the water supply,’ and adds that ‘The Columbian Exposition will be carried through without any outbreak of an epidemic.’

" This belief is based not only on the investigation of the water supply, but of the drainage and sewerage of Chicago, the condition of the far-famed Chicago River, Lake Michigan, and of the sanitation of the city generally.

A Decreased Death-Rate.

" Attention should be called to the result of the sanitary work of the Chicago Health Department during the last six years as shown in the reduction of the death-rate from the preventable diseases. The mortality from typhoid-fever, for example, has been reduced 35 per cent, and the death-rate from preventable diseases in general—the true test of the efficiency of a sanitary administration—has been reduced over 22 per cent. The general death-rate of Chicago during 1892 was lower than that of any other city of like magnitude in the world, and it is claimed that the belief of the London *Lancet* in the healthfulness of Chicago is fully justified."

At the evening session of the general conference a letter was read from the Inspector-General of Health of Mexico, extending congratulations and regretting his inability to be present. Mexico, he said, would hold out a helping hand to a sister republic in organizing boards of health and quarantine at all seaports.

CLEAN UP.

" Dearly beloved breddern and sistern, the lubly spring is with us once again ; de babblin' brooks are bustin' from de icy clutch ob winter, an' are leapin' down de mountain sides, laffin' and splashin' in dere joyful way ; de grass an' de green growin' tings ob ebery kind are beginnin' to push dere way up toward de sky ; de birds, whose notes hab been silent since de fall, are now heard chirrupin' an' carollin' dere songs on ebery hand ; all nature joins in one glad hosanna ob tankfulness dat de beautiful springtime hez come again, wid its flowers an' sunshine dat fills wid hope an' peace an' happiness de hearts ob all mankind.

" Eberyting about de spring is fresh an' clean an' beautiful. Nature gibbs her work a complete renovashun ebery year, so as to blot out de recolleckshun ob de hard winter, wid its snows an' ice an' sleet an' udder disagreeable tings, an' de transfor-

mashun is so magnificent dat we forgive her for bein' so blus-tery an' so grippy an' so nasty durin' de winter, becuz we're lost in admirashun at her complete mastery ob de art ob spring cleanin'.

A Moral Application.

"Ebery housekeeper in de land, too, followin' de example ob Mother Nature, cleans her house from top to bottom in de spring ; carpets are taken up an' all de dust wich hez accumulated durin' de year is knocked outen dem wid a club ; cobwebs are swept from de corners ob de rooms, pictures are taken down an' dusted an' straightened an' hung up again in dere proper places, de woodwork is all washed an' scrubbed an' repainted where it hez become worn from too much use, de cellar is oberhauled an' de rats an' mice an' roaches an' insecks an' disagreeable bugs ob ebery kind, manner an' descripthun are rooted out, all de windows are lef' open, so dat God's fresh air and warm sunlight kin find dere way into ebery corner ob de house, wich now agrees wid Nature, bein' as spick an' span clean as a bran' new pin.

"Dere's a mighty plain an' valuable lesson to be drawn from dis spring cleanin' business, deah breddern, an' ebery man, woman and chile ought to take de lesson home to himself an' try to profit by it to de fullest extent.

"Ebery pusson's soul is like a house, it hez its different rooms and departments and annoyances dat need lookin' after jes' as much as de house dat de housekeeper cleans wid such carefulness ebery spring.

"Wy not look into dis house, deah breddern, now dat de spring time is here, an' see if it doan' need some renovatin' an' touchin' up an' overhaulin'. No matter how careful ya may hab been to keep it in good condishun ya'll be sure to fine a little ob de dust ob sin in some ob de crevices, dat hez been blown in unknownst to ya, or some ob de insecks ob vice dat hab crep' in fru de walls from houses ob yer neighbors, who are not so pertic'ler as ya are yerself about dese tings.

"Take up de cahpet ob yer conscience, deah breddern, hang it up on de line ob truth, an' wallop it well wid de club of examinashun, an' w'en de great clouds ob sin dust com-

mence flyin' outen it, doan' git discouraged becuz de dust feels as if it was a goin' to choke ya ; keep on yer wallop in' wid might an' main, an' when de las' speck ob dust is knocked out, sweep it wid de broom ob resolushun, so's to hab it puffickly clean before ya put it back in its place ag'in for anudder year's hard usage.

Good Advice.

"Keep der resolushun broom in yer hand an' go fru de house from top to bottom, sweepin' de cobwebs from de corners ; push de edge ob de broom in well, cuz some ob dem sin cobwebs are so small dat ya kin hardly see dem, an' if ye lef' dem after ya in da spring, dey might grow into full-sized ones by summer, an' appear to yer eberlastin' disgrace, if de angel ob death happened to drop in on ya widout gibin' ya time to hab eberyting tidied up for his unwelcome but berry important visit.—*The Rev. Plink Plunk, from the Herald.*

RECENT CHANGES IN THE HEALTH DEPARTMENT OF NEW YORK are creditable to the appointing authorities.

Dr. CYRUS EDSON, as Medical Commissioner of Health, cannot fail to give great satisfaction to the public and the profession. His long and varied experiences as sanitary inspector, chief of the Bureau of Contagious Diseases, and sanitary superintendent, thoroughly qualify him for his present responsible position. He has earned, by faithful, energetic work, every inch of his place, and we wish him every success in his new field. As much can also be said of Dr. C. F. ROBERTS, the worthy successor of his former chief. The appointment of Dr. R. S. TRACY, as chief of the Bureau of Contagious Diseases, is also a fitting recognition of most useful services rendered for many years to the Department. The appointment of Dr. F. H. DILLINGHAM as assistant sanitary superintendent, to fill the vacancy created by the death of Dr. Janes, is also alike creditable to the Department and the appointee. Altogether, the profession should be well satisfied with its present representatives in one of the most important departments in the city government.

Dr. C. W. CHANCELLOR'S appointment as Consul at Havre

is an indication of efficient service at that port against the exportation of infectious diseases hither.

THE DETAIL OF MEDICAL OFFICERS TO SERVE AT FOREIGN PORTS UNDER THE OPERATION OF THE NATIONAL QUARANTINE LAW is of like import. The following is the list : Surgeon Fairfax Irwin, Marseilles, France ; Passed Assistant Surgeon J. H. White, Hamburg, Germany ; Passed Assistant Surgeon W. J. Pettus, Southampton, England ; Passed Assistant Surgeon R. M. Woodward, Rotterdam, Netherlands ; Assistant Surgeon G. B. Young, Naples, Italy ; Assistant Surgeon B. W. Brown, Genoa, Italy ; Assistant Surgeon E. R. Houghton, Havre, France ; Assistant Surgeon M. J. Rosenau, Antwerp, Belgium.

THE PHYSICIAN AS A MAN.—In a recent address before a medical college the Hon. Thomas F. Bayard said: " I never knew a really great physician who was not greater as a man—I mean whose greatness did not rest upon his personal and moral basis, which elevated and strengthened his professional life, infused itself into the community in which he lived, and was, in fact, the underlying and pervading cause of his influence and consequent success in his profession. It has been my personal fortune to know such a man. It has been my privilege and delight to accompany him in visits where his only medicines were the personal presence and conversation of the man himself. He had shared and lessened their anxieties ; counselled the wayward ; had led the sick back to health ; cheered the weak-hearted ; had rejoiced with them that did rejoice and wept with them that wept. And I have seen such a man so surrounded by an atmosphere of love and trust, holding as it were the heartstrings of a family in his hands, their guide, philosopher and friend, and then I realized what a moral force in society the profession, properly comprehended and properly followed, was capable of exerting, and how relatively small a part of its usefulness was the administration of medicine."

AMERICAN POLITICS AS AFFECTING PUBLIC MEDICAL OFFICERS.—The American papers report a proceeding on the

part of the Governor of Illinois which ought to be stigmatized in the manner it deserves by every medical journal. The old country has many faults. It may learn many things from America. There is one offence, however, of which it is not guilty—that of making changes in the appointments held by medical men at the head of public institutions on a change of government; yet this has just been done in the State of Illinois.

Dr. Dewey, the medical superintendent of the Kankakee Asylum, is to be deposed from an office which he has held with so much credit to himself and advantage to the patients for many years. I speak from personal knowledge when I say that this physician is an honorable man, free from reproach, and devoted to the institution which he has made a great success under the exceptional difficulties which a new departure from the old lines has necessitated—the experiment, namely, of providing a number of separate buildings for the patients in addition to the central asylum. It has demonstrated how much good may be done in this direction, and has exercised a great influence upon the construction and arrangement of similar institutions in carrying out the intentions of Mr. Frederick Wines and others in regard to segregation as opposed to herding thousands of patients together in one monster building.

Dr. Dewey has solved a difficult problem, but now that the tide of political feeling has taken a certain turn, it has swept him away, regardless of his admirable work, and he is to be superseded by another man. That his successor may be a good physician and capable of filling this responsible post, I do not for a moment call in question, but the gross injustice done to a worthy medical officer, on purely political grounds, remains unaltered, and is a serious reflection on the system which permits it.—*D. Hack Tuke, British Medical Journal, April 1st, 1893.*

LITERARY NOTICES AND NOTES.

LOUIS AGASSIZ, HIS LIFE AND WORK, by CHARLES FREDERICK HOLDER, LL.D., recently published by G. P. Putnam's Sons, New York, is the lesson of a life by no means limited to the interest of naturalists, or to those who would be such, but particularly commendable to all youthful readers, no matter what the purpose of their life work, and to parents and teachers who would themselves, or who would guide others to emulate the life of one who gained the esteem of all who knew him while he lived, and who, when he died, left the votaries of natural science his debtors for all time to come.

Surely no more delightful task ever devolved upon naturalist than the composition of this book upon Dr. Holder. To review his intimate association with Louis Agassiz, to have placed at his disposal the official recognition and friendly correspondence of the foremost scientific institutions and scientists everywhere, and to weave them in with one's own personal knowledge of so good and so great a man as Louis Agassiz, falls to the lot of but few writers, because there are so few such men to write about. His personality and methods as dutiful son, student, investigator, scientist, and teacher are so admirably portrayed as to abundantly account for the affection of all who were privileged to know him personally, and for the high appreciation of his work by the whole scientific world. To become familiar with the life of such a student and teacher is a spur to the best thoughts and the highest attainments of which man is capable.

HISTORY OF THE LIFE OF D. HAYES AGNEW, M.D., LL.D. By J. HOWE ADAMS, M.D. With fourteen full-page portraits and other illustrations. In one large octavo volume, 376 pages, extra cloth, bevelled edges, \$2.50 *net*; half-morocco, gilt top, \$3.50 *net*. Sold only by subscription. Philadelphia: The F. A. Davis Co.

Few books are more eminently worthy the study of every medical student or place in the library of every physician

than this. Dr. Agnew was truly a great man before he was a great surgeon. He was honored and loved at home and abroad as a type of an American gentleman and American surgeon, ennobling the one and dignifying the other.

The author has admirably acquitted himself in this beautiful life history, and the publisher for the material and mechanical finish of a volume of appropriate excellence.

A TREATISE ON THE THEORY AND PRACTICE OF MEDICINE. By AMERICAN TEACHERS. Edited by WILLIAM PEPPER, M.D., LL.D., Provost and Professor of Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. (In two volumes.) Volume I., 8vo, pp. 921. For sale by subscription only. Price, per volume, cloth, \$5; sheep, \$6; half Russia, \$7. Philadelphia: W. B. Saunders.

This work is a new departure in systematic treatises on medicine, composed by a number of authors of recognized eminence in the several departments into which the work is divided: Hygiene, by J. S. Billings, M.D.; Kidneys and Lungs, by Francis Delafield, M.D.; Peritoneum, Liver and Pancreas, by R. H. Fitz, M.D.; Urine (Chemistry and Microscopy), by James W. Holland, M.D.; Blood Vessels, by E. G. Janeway, M.D.; Diathetic Diseases, by Henry M. Lyman, M.D.; Blood and Spleen, by William Osler, M.D.; Fevers, Diseases of the Throat, Stomach, and Intestines, by William Pepper, M.D.; Tuberculosis, Scrofula, Syphilis, Diphtheria, Erysipelas, Malaria, Cholera, and Yellow-fever, by W. Gilman Thompson, M.D.; Inflammation, Embolism, Thrombosis, Fever, and Bacteriology, by W. H. Welch, M.D.; Eruptive Diseases, Vaccinia, Mumps, Whooping-Cough, Anthrax, Hydrophobia, Trichinosis, Actinomycosis, Glanders, and Tetanus, by James T. Whitaker, M.D.; Air-Passages and Pleura, by James C. Wilson, M.D.; Nervous, Muscular, and Mental Diseases, including Opium Habit, etc., by Horatio C. Wood, M.D., and William Osler, M.D. The enumeration of this authorship is a guarantee of the quality of the work. The articles are comprehensive descriptions of the subjects severally, including the latest facts with regard to the prevention, causation, diagnosis, prognosis, and treatment of disease. Hygiene forms the opening chapter of Volume I.,

and under each disease methods of prevention are carefully discussed. Very considerable space is devoted to the important subjects of Insanity and Urinalysis.

Anticipating the continuance of the work on the same basis—in Volume II., promised to appear at an early date—it is safe to say that it is, like the companion Treatise on Surgery recently issued by the same publishers, a great improvement upon the single-author treatises on the Theory and Practice of Medicine, such as heretofore published, and a work of the greatest practical utility to both physicians and medical students.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1893. Edited by a corps of thirty-eight department editors—European and American—specialists in their several departments. P. W. Williams, M.D., Secretary of Staff. 626 octavo pages. Illustrated. \$2.75. E. B. Treat, publisher, 5 Cooper Union, New York.

The eleventh yearly issue of this valuable handbook perpetuates the enviable reputation which preceding volumes of the series have made. The corps of department editors is representative, and the compilation is remarkable for its excellence. Numerous illustrations—many of which are in colors—make the “Annual” more than ever valuable.

Part first comprises the new remedies, together with an extended review of the therapeutic progress of the year.

Part second, comprising the major portion of the book, is given to the consideration of new treatment, and is a retrospect of the year's work, with several original articles by eminent authorities.

Part third and last is made up of miscellaneous articles, at the head of which is placed recent advances in sanitary science; improvements in pharmacy; new inventions in instruments and appliances; books of the year, etc., follow.

The arrangement of the work is alphabetical, and with its complete index makes it a reference book of rare worth. In short, the “Annual” is what it claims to be—a recapitulation of the year's progress in medicine, serving to keep the practitioner abreast of the times with reference to the medical literature of the world.

DISEASES OF INEBRIETY FROM ALCOHOL, OPIUM, AND OTHER NARCOTIC DRUGS: ITS ETIOLOGY, PATHOLOGY, TREATMENT, AND MEDICO-LEGAL RELATIONS. By the American Association for the Study and Cure of Inebriety. 8vo, pp. 400. Price, \$2.75. E. B. Treat, 5 Cooper Union, New York.

This Association, composed of eminent physicians of this country and Europe, has for a quarter of a century studied the scientific side of inebriety—for twenty-two years it has held its annual and semi-annual meetings, at which the subject in its general and special phases has been ably discussed. It has of late attracted renewed attention, growing out of the empiric assumptions that specific remedies have been found for its cure; as a *sequela*, an increasing demand has appeared for the grouping of the studies of scientific men in this field, and for the legitimate inferences therefrom as to inebriety itself and the proper treatment thereof.

At the November meeting of the Association, its Secretary, T. D. Crothers, M.D., was instructed to prepare this volume from the vast fund of material in its possession, with the purpose of demonstrating that inebriety is a disease, and that it is curable as other diseases are. That Dr. Crothers has made the best possible use of the material at hand in support of the proposition is abundantly evident. The work is comprised in thirty-eight chapters, beginning with the early history of drunkenness, under the caption of the "Theory of Disease in Inebriety." Under this name, inebriety is considered in all its phases as the direct or hereditary effect of alcohol, opium, ether, cocaine, chloroform, coffee and tea, nicotine, cologne, arsenic and ginger. It is very clearly shown that all these things are more or less dangerous to health when immoderately taken into the system, and that some of them are *always* immoderately taken if taken at all. But the force of the argument is rather weakened than strengthened by including coffee and tea, and by the effort to show that a fondness for these beverages is inherited by the children of alcoholic inebriates. That they are often used to excess is beyond question; but every close observer knows that drunkards commonly eschew them, or take them in moderation only, and that they not infrequently attempt to justify their fondness

for alcoholic liquors by citing what *they* consider the co-ordinate vice of tea-drinking. No gain is made against indulgence in alcoholic liquors by the use of palliative terms in its characterization, or by belittling it in placing it on the same plane as coffee and tea-drinking, or even as opium, nicotine, and arsenic; drunkenness is so much more debasing than any or, indeed, of all these combined, that it should not be diluted by comparison with them. Moreover, we regret to find the trend of recent literature on "inebriety" generally, as represented in this summary of the "vast fund of material," would make it appear that disease is oftener the cause of inebriety than inebriety disease—a sentiment which is taken advantage of by drunkards to elicit pity and pampering.

MODERN GYNECOLOGY: A TREATISE ON DISEASES OF WOMEN. Comprising the results of the latest investigations and treatment in this branch of medical science. By CHARLES H. BUSHONG, M.D., Assistant Gynecologist to the Demilt Dispensary, New York, formerly attending Physician to the Northern Dispensary, and Assistant to the Vanderbilt Clinic College of Physicians and Surgeons, New York. Pp. 400. Fully illustrated, \$2.75. E. B. Treat, publisher, 5 Cooper Union, New York.

This is a concise summary of gynecological science to date, chiefly devoted to the most improved measures and recent methods of operation and treatment that come within the scope of and that can be of service to the general practitioner.

The major operations are not given in detail, though the symptoms indicating the services of a specialist are fully described. Illustrated by upward of one hundred engravings, many of them from photographs and drawings under the supervision of the author specially for this work, are remarkable for their excellence.

HYDROTHERAPY AT SARATOGA: A TREATISE ON NATURAL MINERAL WATERS. By J. A. IRWIN, M.A., M.D., etc. 12mo, pp. 270. New York: Cassell Publishing Co.

In the midst of an insurmountable amount of quackery in mineral waters, it is refreshing to recognize an effort to counteract it at one of the most fashionable and, if properly used,

most useful mineral spring resorts in the United States. Moreover, the author of the work before us is so well equipped with practical knowledge of his subject, that those who would avail themselves of the benefit of the Saratoga waters should not fail to read it. Well would it be also for all who resort thither—only because it is fashionable to do so, but who nevertheless partake of the waters—to read it, if they would even *maintain* the health which is their wont, instead of, as is often the case, sacrificing it, at the behest of the quacks, who would persuade all who are well that they can be better by following their advice, and all who are really in need of them to use them indiscriminately, with equally dangerous consequences.

Physicians have long since learned that mineral-spring resorts are most lucrative fields of practice, made so by the perseverance of their cure-all proprietors, who induce people to resort to them by misrepresentation. If people generally could be made to understand that mineral waters are *medicine* that should not be taken without the advice of a physician who knows their properties and for what purpose, they would then benefit by them.

The purpose of this book is to inculcate such knowledge. It gives the properties of the Saratoga waters, with directions for their use internally and externally; a brief account of the climate, hotel accommodations and baths, and a description of the region round about. It may be read with profit by all who would benefit by these conditions, and by all physicians who would advise them.

BLANCHISSERIES, DÉSINFECTION, LAVOIRS PUBLICS. Installations, Procédés et Appareils spéciaux par JULES PIET, ingénieur. 1 volume in-8 de 200 pages avec 110 figures. 3 fr. 50. Librairie J.-B. Baillière et fils, 19 rue Hautefeuille (près du boulevard Saint-Germain), à Paris, is a profusely illustrated volume, divided into three parts, describing respectively all the apparatus and machinery required for effectually conducting the several processes discussed, and their adaptation to the conditions of population and institutions.

The first part of the work is devoted to the different methods used and the apparatus necessary for washing all kinds of

clothes. The author reviews the means of bleaching, describes the apparatus employed in washing and rinsing, wringing, drying in the open air and by hot air ; folding by hand and by machines ; mangling ; different kinds of instruments for ironing ; tables, bars on which to hang the clothes, baskets on rollers, windlasses for lifting heavy weights, elevators for conveying goods from one floor to another.

In the second part is described the qualities of the water, the means of collecting and conveying it, pumps and drains ; gauges for steam and other uses. Full instructions for the fitting and furnishing a laundry are given. Reservoirs, thermometers, different kinds of boilers for steam, their size and the means of setting and feeding them ; engines for running the machinery of a laundry, and the best means of fitting them up ; apparatus for washing, cleansing, and disinfecting beds and bed-clothes ; stoves and furnaces for disinfecting.

The third part is devoted to public baths, *bateaux lavoirs*, or boats constructed specially for the purpose of having erected on them extensive laundries, with every facility for washing, drying, bleaching, mangling, ironing, folding, and disinfecting all kinds of clothes. This plan has a great advantage over all other constructions when rivers or other bodies of fresh, pure water are at convenient distances from large centres of population.

Estimates for the construction of these floating laundries and of all other kinds are given and fully illustrated. There are 110 figures in the text, 2 large cuts, and 8 plates.

Plans are given for private laundries, schools, colleges, hospitals, and public institutions of all kinds.

A supplement gives plans and dimensions of laundries in several of the large institutions in different parts of France, thus enabling parties interested to profit by examples.

CHOLERA : ITS PROTEAN ASPECTS AND ITS MANAGEMENT. By G. ARCHIE STOCKWELL, F.Z.S. Two volumes, 12mo. Physicians' Leisure Library Series. \$2.50 a year ; 25 cents a copy. Detroit : George S. Davis.

These volumes comprise an imperfect history of a subject with which all physicians should be familiar. It is, to say the least, rather late in the day for one who has a reputation to

make for knowledge of infectious diseases to attack the germ theory in general, Koch's comma-bacillus *fact* in particular, and to swear by Pettenkofer's ground-water theory of cholera, just after Pettenkofer himself has demonstrated the potency of Koch's comma bacillus in his own person. Yet such appears to be the *raison d'être* of this compilation. It is commended to all who are curious to know what sort of arguments can now be adduced against the accepted truths of bacteriological knowledge.

NO. 2543 of LITTELL'S LIVING AGE completed the 196th quarterly volume, and the 49th year of the continuous publication of this excellent magazine. The volume covers the months of January, February, and March, and its table of contents shows it to contain 97 articles, besides miscellany and poetry. These articles cover a wide range of topics, including valuable biographical and historical papers, readable essays and reviews, choice fiction, the latest results of scientific inquiry, sketches of travel and adventure, etc. Each issue brings its weekly addition to this feast of good things.

It is impossible to find elsewhere so much that is valuable at so small a cost. For only \$8 a year the readers of *The Living Age* have the cream of the whole British periodical press served them, and that with a freshness and fulness, owing to its frequency of issue, not otherwise obtainable. Send 15 cents for a specimen copy to the publishers, Littell & Co., 31 Bedford Street, Boston.

A CITY THAT ENCOURAGES EDUCATION.—In no city that I have yet studied is there such an enthusiasm for education as in Brooklyn. First among the schools, in point of a celebrity that has grown out of long and good standing, are the Packer Collegiate Institute for girls and the Polytechnic Institute for boys. Both are thoroughly modern schools, with a large attendance. The Adelphi Academy is another fine school; and then come the public schools, which, under six years of management by the Hon. Joseph C. Hendrix, have reached a high degree of development, and now appeal to the pride and affection of the town. There are nearly one hundred of these schools. The largest girls' high-school under

one roof in America and the most beautiful of all the boys' high-schools have resulted from this. Both schools are thoroughly equipped, and so ordered that in the girls' school, for example, three courses of study are provided, requiring two, three, and four years. Knowing that I question whether the people should be taxed for a system more elaborate than the poorest are able to take advantage of, Mr. Hendrix spoke boldly for his policy.

"A people with a highly developed common-school system," said he, "is better than a dull, degraded, despairing peasantry. The schools give to the people a share in the government, in actual benefits that they feel. They are more interested in their government, and more anxious to support and defend it in consequence. For the children, a perfect common-school system offers grand opportunities. A poor boy in Brooklyn has the chance to gain the education that the sons of the rich obtain. He may start in our primary grade and go through Cornell University without the payment of a cent for tuition."—From "*The City of Brooklyn*," by Julian Ralph, in *Harper's Magazine* for April.

WOMEN IN FACTORIES: WHAT IS TO BECOME OF THE MEN?—"Ten years ago," writes Lucy M. Salmon, in the *New England Magazine* for April, "a weaver in Lawrence complained, 'One of the evils existing in this city is the gradual extinction of the male operative.' In 1885 in Massachusetts women predominated in fifteen occupations, including those for the manufacture of buttons and dress trimmings, carpetings, clothing, cotton goods, fancy articles, hair work, hosiery and knit goods, linen, mixed textiles, silk and silk goods, straw and palm-leaf goods, and worsted goods."

TOASTS AT TEMPERANCE MEETINGS.—In Boston, in the week ending March 18th, two men dropped dead at public dinners. One of the feasts thus visited was a Tammany Club dinner on St. Patrick's Day, and the fatal visitation did not come until four o'clock in the morning. That case may have been simply one of exhausted nature, but about the other there was something almost suggestive of a judgment. For it happened at the annual supper of a Women's Christian

Temperance Union, and the brother who fell was a Presbyterian clergyman who had just arisen to respond to the toast, "The Temperance Outlook." Is there not something perverse and contrary to nature about having toasts at temperance banquets, and drinking them in water out of goblets? Water is unquestionably the best drink in the world, but not for toasts. It is right and proper that our temperance friends should eat together, and that their souls should flow, but they ought to get up a new apparatus for the exploitation of their after-dinner remarks. The livery of Silenus is not adapted to the service of Lady Henry Somerset and Miss Frances Willard. Twist or turn it as you will, it does not fit.—*Harper's Weekly*.

THE JUSTICE OF THE ANARCHISTS' SENTENCE.—Judge Gary, who tried the Chicago Anarchists, in an illustrated article in the *April Century*, reviewing the case, deprecates any commendation of his course not based on his absolute observance of the law, and says: "The justification of the court, the jury, and the sheriff who administer and execute the law, is that they are obeying the law. If, therefore, I have strained the law—gone beyond its intent and meaning—I am not to be commended, but blamed for so doing. The end, however desirable its attainment, excuses no irregular means in the administration of justice.

"The motive, then, or at least the principal motive, of this paper is to demonstrate to my own profession, and to make plain to all fair-minded, intelligent people, that the verdict of the jury in the case of the anarchists was right; that the anarchists were guilty of murder; that they were not the victims of prejudice, nor martyrs for free speech, but in morals, as well as in law, were guilty of murder.

"Another motive of this paper is to show to the laboring people, of whom the anarchists claimed to be the especial friends, that that claim was a sham and pretence, adopted only as a means to bring manual laborers into their own ranks; and that the counsel and advice of the anarchists, if followed by the working-men, would expose them to the danger of becoming, in law, murderers. I shall show that the real passions at the bottom of the hearts of the anarchists were envy and hatred of all people whose condition in life was better than their own, who were more prosperous than themselves."

AMERICAN CLIMATOLOGICAL ASSOCIATION.—The Tenth Annual Meeting of the Association will be held in Philadelphia, Thursday, Friday, and Saturday, May 25th, 26th, and 27th. Members having papers to present will please communicate with the President, Dr. R. G. Curtin, 22 S. Eighteenth Street, Philadelphia, or the Secretary, Dr. J. B. Walker, 1617 Green Street, Philadelphia, at as early a day as possible.

WORLD'S FAIR DRESS REFORM MOVEMENT.—The movement has been urged in such a way as to have secured the specific approval of a very large number of the most influential women, including not only such well-known reformers as Lady Somerset, Clara Barton, Mrs. Harriet Beecher Stowe, Miss Willard, Mrs. May Wright Sewall, Mrs. Henry Ward Beecher, Mrs. Elizabeth Stuart Phelps Ward, Grace Greenwood and Marian Harland, but also many hundreds of women less prominently identified with reform and more closely associated with the conventionalities of fashionable society, beside some thousands of women who are engaged in educational work, or are students in various colleges.

The National Committee have recommended three general styles of short dress, each of which is subject to as much variation as the wearer may like. The three types are known as the Syrian suit, the gymnasium dress, and the "American costume."—*From "Dress Reform at the World's Fair," April Review of Reviews.*

OBJECT LESSONS IN NURSING.—The Chicago Exhibition is to have something of everything. When every other interest is to be represented, it would have been strange if the department of hygiene had been conspicuous only by its absence. But this is not to be. One of the most interesting and attractive exhibits in this department will be the hygienic dolls. These are being forwarded by the British Section of the Nursing Congress, of which Mrs. Bedford Fenwick is the head; and they are intended to illustrate some of the appliances used in connection with private and hospital nursing. The dolls are dressed to represent the different nurses and sisters who are connected with the British Section; and they are shown in charge of patients, personated by tiny models, which are arranged so as to present clearly the methods of using splints

and other appliances in surgical operations. Some of the patients are exhibited as just ready to be operated on as soon as the surgeon arrives. Among these exhibits will be also nurses' trays completely laid for different meals, with the Princess May's hygienic teapot, practical bed cloaks, bandages and other surgical apparatus, shoes fitted with India-rubber noiseless heels for the nurses to move about in, and various other adjuncts of the nursing side of the therapeutic art. Accompanying these will be portraits of leading nurses and sisters, and a bust of Princess Christian, the president of the British Association for Nurses.

LODGING-HOUSE LICENSE.—There is a bill in the Massachusetts Legislature for the regulation of transient lodging-houses. These houses are alleged to be veritable nests of crime, and the remedy for the evil fostered by them is the familiar one of license and inspection. While no license fee is to be required, the police are to make the rules for the management of the houses. The police have been seen repeatedly in the rôle of reformers, and they have certainly not encouraged us to hope for any improvement from their control. The alternative suggested is the establishment of municipal lodging-houses under the direct supervision of the city authorities. This, however, would not touch the evil at all. If private, uninspected, and unregulated lodging-houses are to be run in competition with municipal lodging-houses, the latter will be generally boycotted by the worst classes. The atmosphere of authority is not attractive to suspicious patrons of cheap lodging-houses, any more than to the rest of us. To insure patronage, it will be necessary to suppress competition, to pass a law prohibiting the maintenance of private lodging-houses. Are the legislators ready for such a piece of tyranny? If not, it is not wise to tax us for the establishment and operation of institutions that must fail to accomplish the main purpose in view.—*Weekly Review*.

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THE HEALTH INTERESTS OF ALBANY, N. Y.*

By LOUIS BALCH, M.D., Secretary of the State Board of Health and Health Officer of Albany.

SITUATED as Albany is, on generally high ground, sloping toward the valley of the Hudson River, with no swamp land near enough to have much, if any, influence upon its hygienic condition, with every facility for perfect drainage, it should be one of the most healthful cities in the State.

Whatever renders the air we breathe impure in the sense not of smell, but of adding to it gases of a deleterious nature, is of menace to health. It is not claimed disease must necessarily follow the breathing of tainted air, or that all impure air has in it the germs of some fever or other ailment, but the continued inhalation of air which is not pure, while no visible results are apparent, lowers the vital forces and makes resistance to disease when it attacks more feeble. The tendency of nature is to recovery from conditions abnormal. This is the natural resistance of the healthy organism against illness, but this resistance is so weakened by anything that lowers or depresses the normal standard of perfect health as to allow of far greater activity, on the part of the morbid influence, than would be the case were it the other way. Take one who lives in impure air, drinks polluted water, and has insufficient and improper food. If he is attacked by any ordinary disease, say, typhoid-fever, for example, his vital forces are so im-

* Abstract of paper (*Albany Medical Annals*) read at the Albany Institute, March 6th, 1893.

paired, the normal standard is so lowered, that the patient succumbs, and no medical skill can control the disease. The man has not the strength to resist the disease, and so he dies. Nor has he, from the impaired general physical condition, lowered by these requisites of health not being what they should be, the assimilative power on such sudden call, even though he be transferred to better hygienic surroundings, to avail himself of the benefit thus offered. And yet this same man before the onset of the fever was a strong and apparently perfectly healthy specimen, one able to do a hard day's labor and continue the same indefinitely. He had become acclimated, if I may be allowed the term, to a lower plane of physical health, one which appeared equal to the highest, but one which could not offer the same resistance to disease when it was attacked.

In a city many causes operate to vitiate the air. Many of these are necessary evils, and cannot be remedied. They must be borne as other things are borne where men segregate. Others, however, are within the power of man to remove. And some have been acted against by the Board of Health, and are, as fast as possible, being done away with. For the last four years the old-fashioned vaults in yards have been forbidden construction or maintenance. It still requires a good deal of explanation and argument to convince people of the benefit of this ordinance, benefit not only to themselves but to their neighbors, but a few minutes' thought will serve to show the Board was wise when taking such action. One, or possibly a few more vaults, would cause but little contamination of the air, and all, non-appreciable pollution if the temperature always remained at a low mark. In cold weather the rarification of the air, the arrest of decay in the vault's contents stops the emanation of gases, and no danger arises from these old-fashioned receptacles. This is, however, different when the mercury rises and the hot, moist air of summer lays over the city. In short yards, in compact blocks of buildings, the heavy summer night air does not carry away the gases generated by the fostering deposits, and they all are carried through the windows by air currents, breathed by those sleeping in the houses, doing the perfect work without blare of trumpets.

Vaults are generally constructed with drains leading to the street sewers. Here we have, in the opinion of those directed to do away with their out-houses, another strong reason for the great injustice done by the order of the Board ; for it is claimed the drain keeps the vault emptied of its contents. But the drain is only a further argument against retention. The vault floor is from three to five inches below the drain mouth, to prevent tin cans, old boots, bottles, fish heads and other substances, for which the vault is an easy and handy receptacle, getting into the tile and choking. So from five to eight cubic feet of matter is left to rot and give off its miasms, and that this does take place any one can easily prove by examination of an ordinary yard vault during the hot months. The drain mouth is open above this deposit, and, as the vault is higher than the sewer, it acts as a ventilator to the latter, thus adding to the poisoning of the air by belching forth the gases generated in the street sewer through the openings in the seat of the vault. During the day, if it be hot and sunny, the danger is lessened by the sun's rays acting upon the gases, but at night every facility is offered for admixture with the air we are compelled to breathe of these noxious and poisonous gases.

I have said but little danger arises from this source in cold weather, but complete immunity cannot be claimed even then. Most, if not all vaults, seep somewhat into the surrounding earth, thus adding to the pollution of the ground air already infected from leakage from drains and sewers, a source of impurity impossible to guard against. But the added defilement of sewage from vaults may be done away with. This ground air in winter, our houses being heated, is drawn into them more or less, and accounts partly for the peculiar odor found in cellars. It mingles with the warm air supplied to the dwelling in general, and naturally we are inhaling it with every respiration drawn indoors. I think, were the reasons of the Health Board fully understood for the passing of the ordinance forbidding vaults, less opposition to its enforcement would be experienced.

Modern sanitation requires definite methods and removal of house wastes, such as kitchen garbage. To do this costs money, but the keeping of such material for three or four

days in a box or barrel, in the hot weather decay taking place or beginning before removal, is another source of pollution. The present manner of its collection in this city, by private parties who use it for various purposes, is not conducive to cleanliness, to say the least, and is certainly not in accordance with known rules of sanitary science. Watch the carts used for this work, and see the drippings and droppings that come from many. These are obliterated in the streets, but nevertheless add their quota to the general malicious exhalations.

By the use of street sweepers, advance has been made in cleaning of streets, but much is yet to be desired. It is still the custom in Albany to consider each householder has his own comfort as much at heart as could officials, and consequently he is expected to clean the street opposite his own door, sweeping the dirt into well-shaped piles for the convenience of the contractor's men in gathering it up. But the practical working of this economic scheme is not equal to the theory. Man has not yet reached the stage when he believes it his sole duty to do always as he should. Situated as we are on a side hill, many wait for heavenly aid to relieve them of this troublesome cleaning, as a heavy rain washes their share of dirt on their neighbors below, who, having double the amount, considers it unfair he should sweep for two, and, consequently, no pile is ready for the contractors to gather. And so the dirt takes chances, and the wind whistles it up and whirls it about in eddies, scattering it broadcast, and the street is cleaned. But what becomes of the animal matter in the street dirt? It must decay and add its share to polluting the air.

It appears, then, different conditions enter into the combined effect of rendering city air a grade below that considered a requisite for health. While some cannot be remedied, every effort on the part of the authorities to better the existing state should be met with cheerful support on the part of citizens, for, while at first the cost might somewhat raise the rate of taxation, the increased healthfulness due to such efforts draw investors and more money into the town, thus enlarging its prosperity and lightening the taxes by greater distribution.

Much has been said and published of late in the local papers about water-supply.

The State Board of Health has for the past four years been making a careful study of the waters of the Mohawk and Hudson rivers from Rome on the former to Hudson on the latter. Some results of this work, results directly affecting Albany, I have the pleasure of laying before you. In addition to this I have had the honor for several years of serving the city as its Health Officer, and the experience drawn from such practical work helps me to the conclusions now presented. It is well known the major supply of drinking water for this city is taken from the river, pumped up from the intake opposite Quackenbush Street to the reservoirs. The authorities of the newspapers tell us much about the pollution of the cities and towns above us, and some of them aver with great courage that on account of the flow and large amount of water, this pollution is carried off, and the water we receive is pure, wholesome, and free from unlimited supply. I have not seen much attention given by these eminent writers to tidal action. It is by one set continually kept before the public that Troy is the main agent of the pollution, and by the other, as already said, that we need fear no effect from Troy, for no pollution reaches us. Floatage experiments, however, tell a different story, and while they do not relieve the towns above us of contaminating the water, show the major pollution comes from the sewage of Albany. It is the most immediate and active pollution, for its discharge is more direct and less time is given for sedimentation or the action of the moving water. If to-day all the sewage above the city was removed from the river, the water-supply would be still tainted and a source of menace.

Professor Brown, of Union University, who has had charge of the examinations of water supplies conducted by the State Board of Health, has kindly furnished me with the bacterial curves between Troy and Albany. The great amount of bacteria is shown a short distance below Troy. Above this point, fresh pollution is added from the iron works and other sources, but we find even with that the bacterial curve constantly lowering until the intake is passed, when the sewage from Greenbush and some influence from our own is felt and the curve rises slightly. On our side of the river we trace the flow of sewage on the ebb and find West Troy to have some influence,

sending the curve up to about 1500 bacteria per cubic centimetre, until again we come to our intake, and here we find the lowest rate shown, about 700 per cubic centimetre. But see what influence is instantly felt by the discharge of Albany sewage. Up goes the curve to 21,000 per cubic centimetre, showing clearly that the sewage of Troy passes mainly to the east side of the river, and that on the ebb tide this sewage gives the least pollution at the intake.

Floatage experiments show the tidal action to be met at Pleasure Island (three miles above Albany), for up to this point, even though the tide rises at Troy, the current is southward, but slower than on the ebb. Below our intake the curve rises to 6500, and directly opposite the intake to 3800 bacteria per cubic centimetre, and then away it goes to 9500, gradually falling till opposite Pleasure Island. This great rise of the curve is caused by the Greenbush sewage and partly by our own. Below the intake it rises to 34,000 per cubic centimetre; falls at the intake to 2000, and rises from there gradually until it meets the down current, reaching about 3800.

The examinations show two things. First, as all tests have hitherto shown, the water pumped from the river is taken from the spot least affected by sewage pollution; and, second, that the greatest pollution is caused by our own sewage.

It should further be stated the bacteria counted were all that were in sight. But to show more clearly the pollution is from sewage, and may contain dangerous germs—germs of disease coming from man—another diagram showing a cross-section of the river at the intake has been made. This shows the number of bacilli coli communis counted, and shows that number to be largely increased by flood tide.

To remedy this state of affairs and to furnish Albany with good water, if the river is to continue the source of supply, intercepting sewers are absolutely necessary—sewers which must empty below the Island Creek—or if discharged at that point, have attached sewage disposal works which will treat the sewage in such manner as to render the effluent of the least contaminating force. Then can the city proceed against all places above, cause like improvements to be made, and we may feel fairly safe in the quality of water taken from the

river. Either this or the water should be taken from some other source.

But while to all appearances the pollution is less at the ebb tide, another fact must be taken into consideration. The pollution is caused from our sewage going up stream. It meets the return current, and being precipitated is partly washed down again, so constant and unending pollution, of about 700 to 1000 bacteria per cubic centimetre, is present. It is stated pure river water contains from 2 to 300 bacteria, in brook water from 20 to 200 per cubic centimetre and of the bacillus coli from 0 to 5. We see the contamination is one that calls for attention, and is not to be left to the wisdom of those who write letters to the papers with only the experience of the "oldest inhabitant" to quote as authority.

It would take too much time to enter upon the question of what influence the pollution of our water-supply has upon the health of the city, or whether from this cause disease has increased of late years. It is sufficient to say that the most careful search of water which we know must somewhere contain the germs of typhoid, has failed to reveal them. The charging of the water of all cases of typhoid in Albany is not, in my opinion, tenable, but it is useless to discuss that question, as it is beyond the range of this paper, more properly belonging to a medical society. It may be said, however, impure water has the same general effect as impure air, and to both one slowly becomes accustomed, but none the less are their effects felt.

SOME PUBLIC CONDITIONS OF SANITARY INTEREST IN ALBANY.

READ AT A MEETING OF ALBANY COUNTY MEDICAL SOCIETY,
APRIL 25TH, 1893.

By F. C. CURTIS, M.D., Chairman of the Committee on Hygiene, Albany Co.,
Medical Society.

THERE is no direction in which Albany has made more progress than in the paving of the streets. Since 1885, according to the last report of Mr. Andrews, city engineer, the

percentage of cobble-stone pavement has fallen from 77.5 to 50.9, and granite pavement has risen from 17.9 per cent to 31.8, and 12.3 per cent is asphalt. The amount of pavement has risen from 52 miles, of an average width of 36 feet, to 60.77 miles. The new pavement is vastly smoother, cleaner, and more durable.

An ideal pavement, which has not yet been found, would possess these characteristics: Durability, moderate cost of construction and maintenance, slight resistance to traction, secure foothold for horses, smoothness of surface to prevent accumulations of water, impermeability to water, noiselessness; most of which, aside from cost, are sanitary considerations. The granite block, which is as yet our best all-around pavement, lacks in that it is excessively noisy and, as generally laid, in impermeability, the wide-open joints absorbing liquids, or, where the sand filling is washed out, allowing water and filth to accumulate. The latter objection is being overcome in recent work by filling the joints with some form of pitch or cement. It will always be noisy and will always lack smoothness in use. There is no doubt that noise is a sanitary evil that is of considerable magnitude on residence streets.

While no pavement is ideal, yet there is one which, under suitable conditions, may be commended as seeming to possess more characteristics of an ideal pavement than any other, and that is brick. Bricks made of suitable clay and properly vitrified throughout will resist a steel drill, and a chip will cut glass, will absorb very little water, and is not readily fractured. The pavement laid with a close joint permits the retention of a very little liquid. It is the smoothest and most noiseless of pavements, its smoothness contributing to its durability. It should be laid above a bed of concrete, though much has been laid on sand; with the concrete and with imperfect bricks culled out, there can be no depressions formed in which puddles may collect. Its sanitary value depends on the quality of the brick and the care of construction. It is fairly economical, its cost, with brick at \$20 per thousand, which I am told good bricks will cost delivered here, being less than that of granite, with open joint; \$1.40 per square yard in Galesburg; about \$1.80 in Syracuse on concrete base. It is not adapted

to our hill streets, as it does not give good foothold to horses. But for residential streets, that are fairly level, it may be well advocated as having sanitary characteristics to commend it—noiselessness, smoothness, cleanliness, and impenetrability. I have seen this pavement in Syracuse, where it is thought highly of by the health authorities, and it is coming largely into use elsewhere.

A good deal has been said of late about the death-rate of cities, in the public press, and incidentally of that of Albany. Much of this has been to Albany's disadvantage. The factors upon which a death-rate is computed are very elastic. This is shown by the following variable rates, as published, of several large cities for 1892: Chicago, 18.23 deaths per 1000 population; New York, 24; Philadelphia, 22; Brooklyn, 22; Baltimore, 23.26; Boston, 23.92; San Francisco, 19.06; Cincinnati, 20.37; New Orleans, 29.88; Washington, 24; Detroit, 24.93; Milwaukee, 17.81. These figures vary from 17.81 to 29.88, though this high rate, in New Orleans, as that of other Southern cities, is largely due to the mortality of the black people, which is always double that of the white. Published rates of death vary with the thoroughness of the collection of death returns. It is safe to say that any death-rate steadily below 20 per 1000 population annually in a large city is to be regarded with scrutiny and questioned as to its reliability. It implies an average longevity of 50 years, 22 implying 44 5 years. In 1892 there were nearly 20 deaths per 1000 outside of the six larger cities in this State. Of these 20 deaths not more than 6 were due to zymotic or preventable diseases, and it is evident that no value whatever is to be placed on some reported death-rates of 10 or less, aside from the fact that such a death-rate implies an average longevity of 100 years.

For the last eight years the average death-rate of Albany has been 23.44. For the same period, that of New York City has been 24.50; of Brooklyn, 21.40; of Syracuse, 20.00; of Buffalo, 22.50; of Rochester, 20.25. In 1892 there were 2558 deaths in Albany, the largest number of any year on record. This makes a death-rate of 25.00, and this has attracted comment. In looking for the cause of this, it should be said that, for one thing, Albany secures a record of every death; this is

not true of many places. It should also be noted that Albany is a city of very slow growth ; cities having a constant influx of young, healthy life always show a comparatively low rate of mortality.

Our public institutions bring in an excess of feeble and aged persons. The *grippe* epidemic in the early part of the year caused a large number of deaths, and is the chief cause of our high death-rate last year. This shows in the mortality from respiratory and other local diseases. It is, however, true that for 1892 our zymotic mortality was excessive, there having been 550 deaths from these causes, or 5.5 per 1000 population, which is equivalent to one death in 180 population, the rate for this State being 3.6 per 1000, or one to 280 population. An extensive epidemic of scarlet-fever prevailed all the year, 162 deaths, or nearly one third of the zymotic mortality being from this cause—as many deaths as occurred during six or seven years preceding. Diphtheria caused 117, which is more than in any year since 1888. Measles also caused a larger number of deaths than usual. These are diseases the medical profession can do much to control, and they should be controlled, especially scarlet-fever and diphtheria.

Much interest centres, however, in the fact that we have, not this year especially, but constantly, a large mortality from typhoid-fever and diarrhoeal diseases. The latter caused 165 deaths. The etiology of diarrhoea is so various that it is difficult to draw comparisons in regard to prevalence that are of value, with other cities, for its causes are almost wholly urban. With typhoid-fever the case is different—we have pretty definite knowledge as to its causes. A specific cause is necessary for its production ; this cause is present in the intestinal discharges ; and this specific cause reaches the body of a susceptible person mainly through the channel of water or other uncooked food impregnated with fœcal matter or through fœcal effluvia—these explain about all the events that have been recorded in connection with this disease. For eight years there have not been more than two months in which typhoid-fever has not caused deaths, although its seasonal increase and decrease have not varied from the normal. During that time the average number of deaths yearly from it has been 73. There are no reliable statistics prior to 1882,

but the disease has long been prevalent here—to a less degree probably for the decade 1870 to 1880, during which there were printed reports which show an average of 35 deaths annually. Relatively to other deaths they then constituted 2.3 per cent of the total mortality, and for the last decade 3.3. It is seen from this that typhoid-fever is and has long been a prominent, endemic disease in this city. The figures I give are the result of careful study.

Compared with other places, during the last eight years, on an average New York has had 21.6 deaths from typhoid-fever, to each 100,000 population annually; Brooklyn, 18.4; Buffalo, 38; Rochester, 40; Syracuse, 38.4; Poughkeepsie, 32; Kingston, 16; Newburgh, 32; while Albany has had 76. In 1892, which was a year of low mortality, for this disease here and elsewhere, there were 25 deaths per 100,000 population in the four large cities of the State (New York, Brooklyn, Buffalo, and Rochester), while in Albany there were 50. In the six cities and villages of Troy, Albany, Cohoes, West Troy, Schenectady, and Amsterdam, there were 66, Troy being the lowest, 34 per 100,000.

There is not time for lengthy statistics. I instance these two groups in contrast; the latter drinks water from the stream flowing in front of the towns on it and into which they sewer; the former takes its water from a remote source. The same extraordinary discrepancy in the proportions will be found everywhere else; in other smaller cities of the State, as Binghamton; in the larger cities of Cincinnati, St. Louis, Chicago, Hartford, and others as reported. American and English physicians have accepted it as settled that the chief medium by which this infection reaches the individual is the drinking water.

On the Continent, in Germany especially, the profession has been divided between the "ground theory" of the origin of typhoid-fever, with Pettenkofer as its chief advocate, and the "water theory," with Koch as the leading advocate. It is clear that the "ground theory" is losing its adherents. I am myself quite convinced that, to a large degree, the "ground theory" may be resolved into the "water theory," and that its apparently complex etiological action finds its ultimate expression in drinking water as the immediate means of infection. It assumes that the germs of the disease pass

into the soil, where they remain perhaps for a long time, retaining their vitality, and under favoring conditions, the chief of which is a low state of the ground water, such as exists in time of drought, they undergo a process of development and, rising from the soil, infect the atmosphere. I believe it is rather true that, having elaborated, they find their way to sources of water, and by means of it are carried into the system. Recorded observation proves that outside of exceptional cases, typhoid-fever is contracted simply because we drink water that comes from our sewers.

From this city and the towns above us 100,000 tons of excretory matter are carried yearly into our river, 40,000 tons being contributed by the human beings of Albany; besides this is the waste from lower animals and other sources, these figures being based on Letheby. The Hudson is the natural effluent of this region—its great drain. Should it not be relegated to this function alone, so far as our domestic relations with it are concerned?

One other sanitary matter I take time to barely mention. There is need in Albany of some more systematic method of disposing of garbage and like waste. There never was any method of value, and for the last few years, it may be said there has been practically none. People have to burn it themselves (than which there is no better way of disposal if they would do it) or trust to the voluntary removal by itinerant collectors. Much of it fails of suitable collection, and, especially among the poorer people, it is without question a source of evil and danger. A sanitary committee of ladies has done much to rouse public sentiment regarding this. To institute a suitable plan for collection of garbage and to decide upon the best method for disposing of it, is a considerable undertaking, and will involve a large outlay, and should be carefully planned. But it should be done, and it is probable that the most satisfactory and perhaps least expensive method would be by means of a suitable crematory. Albany has every natural advantage for health, in climate, topography, and soil; with good water, good sewers, good pavements and suitable waste removal, it ought to be an exceptionally healthful city. It is on the great highway of travel, and exposed to transportable zymotic diseases, but with energetic management it can be, and to a large degree has been, kept free from these.

THE CHOLERA IN HAMBURG IN 1892.

ABSTRACT OF PAPER BY F. REICHE, M.D., RESIDENT PHYSICIAN IN THE NEW GENERAL HOSPITAL, HAMBURG-EPPENDORF.

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THE most striking feature of the recent epidemic of cholera at Hamburg—the fifteenth from which the city has suffered since 1831—was its sudden, explosive beginning. There were not, as in previous epidemics, at first isolated cases of severe gastro-enteritis, to afford an opportunity of testing the resources of modern hygienic investigation in the recognition of the disease, the isolation of the patients, and the adoption of preventive and protective measures. Physicians, officials, and the community were first alarmed when a large number of cases appeared simultaneously in many widely-separated parts of the city. In this epidemic, in contrast with previous visitations, the low-lying districts of the harbor were not alone at first attacked.

To-day evidence is yet wanting as to the source of the first case. The manner in which the disease virus was introduced and the time at which the introduction occurred are still unknown. The city enters into commercial relations with all parts of the world. That the germ was not brought by way of the mainland would seem to be demonstrated by the fact that no cases occurred in any place situated between Hamburg and the two nearest countries in which cholera at the time prevailed—*i.e.*, France and Russia—before the outbreak of the epidemic in Hamburg itself. Isolated cases that subsequently appeared in various parts of Germany, but which in no instance furnished the starting-point of an epidemic, could be traced to refugees from Hamburg. Whether the germ of the disease was brought by ships from Havre or from the Black Sea is not known; general opinion, however, inclines to the latter-named source, and in particular to Baku, whence the

scourge had from the early part of June pursued its way north-westward over Russia to St. Petersburg. The suspicion, at first largely entertained, that Russian emigrants, of whom there were at the time large numbers passing through the city on their way to England and America, acted as carriers of the disease, was found to be entirely unsupported.

Although the portal of entry of the disease remains unknown, there is substantial evidence in explanation of its peculiar mode of extension. The simultaneous invasion at the beginning of the epidemic of parts of the city widely separated from one another, but especially the limitation of the epidemic within comparatively sharp lines, separating Hamburg from the neighboring cities of Waldek and Altona, which were exposed to the same conditions of air, and probably, also, of soil, but each of which has its own separate water supply, leads to the inference that the common water supply of the city is to be looked upon as the principal channel of dissemination of the germs of the disease.

The city receives its supply of water, unfiltered, directly from the river Elbe, at a point just above its extensive harbor. The danger implied by this fact becomes the greater when it is added that the sewage of the densely populated city is poured into this stream, and that the ebb and flow of the North Sea are perceptible at the source of supply. Waldeck receives its drinking-water from an inland sea, while Altona derives its supply from the Elbe below Hamburg, but subjects it to a process of purification by a method of sand-filtration that has been in operation for many years. The water supply of Hamburg has thus been entirely inadequate and in the highest degree dangerous, furnishing conditions the most favorable for the existence of vegetable and animal life,* while the interior of the water-distributing pipes is lined with a heavy deposit of organic matter. An additional factor favorable to the development of the disease germs—*i.e.*, the comma bacilli—assuming their presence and constant renewal in the pipes of the water supply, is the existence of reservoirs with which, by municipal decree, all houses must be provided, as a precaution in case of fire, in order to equalize variations

* K. Kraepelin : "Die Fauna der Hamburger Wasserleitung," *Abhandlungen des Naturwissenschaftlichen Vereins in Hamburg*, ix. 1.

in pressure in the water supply and to facilitate a uniform distribution of the water from a central source. The reservoirs were often cleansed but carelessly, and sometimes not at all, and the slimy deposit that formed at the bottom furnished a most favorable soil for the development of micro-organisms of all kinds. Too much reliance was placed upon filtration of the water, which was practised in most households, even among the poorer class.

In the disposition to the occurrence of local epidemics thus created, those that seek in the water supply alone the conditions for the propagation of the disease would find the most important factor in explanation of the invasion of certain stories and certain houses of the same street, with the escape of others. It goes without saying that other influences, such as an irregular mode of living, lack of cleanliness, a failure to carry out the preventive and protective measures recommended, as well as crowding amid unfavorable hygienic conditions, entered into the determination of an attack. These must be considered in every epidemic in every city, and do not apply, as do the other factors, specifically to Hamburg. One other point must not escape mention, and that is the large number of crooked, dirty, densely populated streets peculiar to Hamburg.

All attempts to demonstrate unequivocally, by plating methods, the presence of comma bacilli in the water of either the general supply or the house reservoirs failed. This fact cannot be urged as an argument against the spread of the disease by way of the water supply, in view of the difficulty of detecting cholera bacilli in water. It seems to have been by a peculiar and unfortunate chain of circumstances that the disease germ found its way into the city just at a time at which the splendid new water-works that have for a number of years been in process of construction are approaching completion, which will in future provide water clarified and purified by a process of sand-filtration, and will at the same time permit the source of supply to be transferred to a point higher up the stream.

The extent to which those conditions of timely and local disposition, to which so much importance has been attached as a result of the epidemiologic studies of Pettenkofer, enter

into the etiology of this severe and sudden epidemic cannot yet be determined. Conjecture is here given greatest rein, especially as the actual date of the first infection remains unknown, and also, in consequence, the length of time during which the virus remained latent or its presence was unattended with evil.

Mild attacks of diarrhœa, differing in no respects from the attacks of summer diarrhœa commonly observed every year, were of frequent occurrence in the weeks preceding the outbreak of the epidemic. As a matter of fact, during this time meteorologic conditions prevailed that, according to all previous experience, were most favorable to the spread of cholera, and that besides were extremely rare at and in the neighborhood of Hamburg. The weather of Hamburg, lying as the city does between the North Sea and the East Sea, is generally variable, damp, and, even in midsummer, is seldom very hot; but in the second half of August, 1892, the weather for several days in succession was extremely sultry, with a clear sky and mild southerly and westerly winds. The few thunderstorms that occurred brought no relief. Between August 17th and 24th the temperature rose almost daily above 87.8° F. In conjunction with these conditions the water in the Elbe sank to a low level, and the ground-water level also fell. During the preceding months the precipitation had been unusually slight.

In consequence of the heat—perhaps, also, as a result of the presence at this time of an unusual proportion of salt in the water of the Elbe and in the drinking-water—many forms of animal life present in the water-pipes succumbed (Dr. Ahlborn); the otherwise sessile bryozoa were detached in large numbers, and, dying, furnished a favorable soil for the multiplication of germs of all kinds. A permanent decline in the temperature took place in the last days of August.

To what extent, in addition to the factors already considered, local disposition entered into the invasion of individual portions of the city will be discussed more fully later on. The conditions at Hamburg are not encouraging to a study of this kind; the city lies in part upon high, dry soil, and in part upon damp, marshy land. No final conclusion is to be based upon the fact that the proportionately larger number of cases

occurred within the latter-named area, as it is largely populated by the poorer portion of the community.

Turning now to the course of the epidemic, it will be seen that the number of cases pursues a rapidly ascending line, with a moderately sharp decline, the highest point being reached on August 27th. Early in November three more cases were reported.

The population of the city may be estimated at 600,000 inhabitants. In the table 85 cases are recorded as having occurred before August 21st ; these probably all occurred after August 15th.

It devolved upon the hospitals to make the diagnosis. A case admitted to the New General Hospital on the evening of August 16th, with pronounced symptoms of cholera, died on August 17th, and a post-mortem examination was made on August 18th. Immediate examination of the intestinal contents failed to afford positive evidence. This was, however, furnished subsequently by the plating process. In the second case, also admitted to the New General Hospital, and in which the post-mortem examination was made on August 22d, Dr. Eugene Fraenkel was able in the course of the autopsy, from an examination of the intestinal contents, to make an unequivocal diagnosis of Asiatic cholera. The diagnosis had been made with equal certainty in the Old General Hospital on August 21st, and in the course of the same day a considerable number of cases were admitted to this institution.

Up to August 20th there had occurred 85 cases with 36 deaths ; and during the first week, ending August 27th, 3773 cases, with 1317 deaths.

At the end of the second week, September 3d, there had been 6378 cases, with 3013 deaths.

During the third week, ending September 10th, the number of cases and deaths respectively were 3362 and 1548. During the fourth week, ending September 17th, 2393 and 923. During the fifth week, ending September 24th, 1327 and 547. During the sixth week, ending October 1st, 472 and 180. During the seventh week, ending October 8th, 170 and 46. During the eighth week, ending October 15th, 71 and 25. During the ninth week, ending October 22d, 24 and 7 ; and during the tenth week, ending October 29th, 2 cases and 4

deaths. Total for the period, 17,972 cases, with 7610 deaths. The municipal authorities were apprised of the facts on August 22d ; on August 23d a proclamation was issued to the people, together with information as to the means of protection and prevention to be adopted ; a short time later the schools and the river baths were closed, and careful supervision of railway intercourse was instituted. Life in the harbor languished.

Both the New General Hospital and the Old General Hospital at once made provision for the reception of patients. The New General Hospital is situated in the suburbs of the city, having been erected a few years ago upon the pavilion system. It is well equipped, and generally accommodates 1600 patients. The Old General Hospital is a large building, constructed upon the corridor system, and possesses even a larger number of beds than the New General Hospital. Behind the New General Hospital stood six barracks, each provided with twenty beds, and its own commissary service and drug-store, in anticipation of an epidemic. These beds were rapidly filled, and additional room had soon to be secured. Convalescents were dismissed from the hospitals ; those most ill were crowded into a few pavilions or wards ; several small hospitals in the city and a number of dwellings rented for the purpose were prepared for the reception of patients not suffering with cholera.

Throughout the entire epidemic, notwithstanding the great demands made in the course of a few days upon the administrative and executive officers, upon the commissary department and upon the physicians, not a single patient was refused admission to the hospitals on account of want of room ; and at no time was there any real difficulty in making provision for all that were admitted. Up to August 28th, 29th, and 30th, when the tide of the epidemic began to ebb, it was at all times possible to find new room, to furnish clean beds and fresh linen, and with the aid of faithful assistants to provide well and promptly for patients, and to insure cleanliness and good and efficient nursing. Minor obstacles that occasionally arose are not worthy of consideration. By way of illustration : on September 2d there were in the Old General Hospital 1062 cases, and in the New General Hospital 1024.

Not before the first of September were barracks erected in various parts of the city : in the gardens about the Old General Hospital ; in the harbor in connection with the Seamen's Hospital ; and in the eastern and western parts of the city. On August 30th a school-house, prepared in the course of twenty-four hours for the reception of 80 patients, was opened in the southeastern part of the city and placed under my charge. A field-hospital, with a capacity of 500 beds, furnished by the Minister of War, was erected adjacent to the New General Hospital, and close to this, on September 15th, a barracks with a capacity of 250 beds was additionally provided. Physicians, nurses, and assistants had come from all parts of the German Empire with proffers of aid.

The ambulance service was somewhat more tardy in systematic organization. It was necessary to transport patients to the hospitals simultaneously from all parts of the city, at the remotest distances. Notwithstanding the large number of conveyances impressed into this service, some little difficulty was at first experienced on account of the enormous number requiring transportation. The common transportation at one time of several cases of varying degrees of intensity was a not infrequent occurrence in the first few weeks of the epidemic. The system of transportation was directed from a central station, for only thus could it have been possible to direct the stream of patients to the one or the other of the two receiving hospitals, so that the other might meanwhile be afforded a few hours for rest, recuperation, and renewed preparation.

Sanitary stations were established in twenty different portions of the city, and in these were placed physicians whose duty it was to furnish first aid. Each station was provided with a disinfecting oven, by means of which wearing apparel, linen, and bed clothing were sterilized in a current of steam. From these stations persons were deputed to visit the houses in which cases of cholera occurred, for the purpose of disinfecting the stools and the furniture, and to protect the remaining members of the family from infection. Disinfectants were gratuitously distributed among the people.

Burials took place directly from the hospitals or from provisional pavilions especially constructed for the purpose. Huge graves were dug in the Central Cemetery. In this con-

nection there was some little difficulty at the height of the epidemic.

Among other measures adopted in the course of the epidemic was the sending through all the streets of wagons dispensing boiled or spring water ; the boring of artesian wells ; the cleaning of certain especially unhygienic quarters of the city ; the organization of aid societies by the citizens, and the collection of moneys for the support of impoverished families.

The population maintained a praiseworthy calmness ; readiness of aid and willingness of sacrifice characterized all classes.

As to the disease itself : a preponderance of severe cases at the beginning of the epidemic, with a moderation in severity as the mortality rate declined, was a marked feature of this epidemic, as it has been of previous extensive ones.

Two features characterized this epidemic in contrast with the majority of others : the absence of febrile temperature early in the attack and the conspicuously frequent absence of all prodromal symptoms, particularly the premonitory diarrhœa. Observations bearing upon the temperature were made in comparatively few cases ; but neither I nor others, so far as I have been able to learn, observed in the algid stage greater differences between the temperature of the axilla and that of the rectum than are at all times present.

In the majority of cases, thus, the disease set in abruptly and at once assumed its full intensity, so that frequently, and particularly at the beginning of the epidemic, profound collapse, with diarrhœa, and cramps in the calves of the legs, speedily followed the initial vomiting. Cases of fulminant cholera sicca were common at this time. Individuals would be stricken upon the street, while at work, or during a meal.

The clinical picture presented by the disease did not differ from that presented in previous epidemics. A secondary febrile period, or so-called reaction, lasting from a few days to two weeks, appeared in the train of many cases of marked and of moderate severity, often without noteworthy disturbance of the general condition ; but in a smaller proportion of cases, with more or less well-marked typhoid manifestations.

In isolated cases the spleen was found to be enlarged. In many cases of grave type the algid or asphyctic stage was followed by a profound and almost always lethal sopor, in many

respects resembling the coma of uræmia, from which, however, it differed in the absence of all convulsive manifestations. In the cases under my observation the pupils were, under these circumstances, always contracted ; œdema was absent ; frequently there was marked restlessness ; the pulse was tense and slow ; the cheeks often presented a vivid blush. No changes were found in the few cases in which the eye-ground was examined (Dr. Moritz).

The urinary secretion was in part suppressed, in part represented by a fluid of low specific gravity and which had to be removed by means of the catheter. In the algid stage the anuria was typical ; the resumption of the renal function constituted a good, though not absolutely favorable prognostic indication. The first urine passed contained for a short time albumin in varying proportion, together with hyaline tubercasts, epithelial cells, colorless and isolated red blood corpuscles. Persistent albuminuria, with other symptoms of chronic nephritis, was extremely rare ; it was present in none of the 376 cases under my care. Reducing substances were, however, sometimes present in the urine passed shortly after the algid stage.

Cutaneous eruptions were relatively common ; they mostly resembled the exanthems of measles and urticaria, and were often attended with slight extravasations of blood, so that yellowish spots remained for several days after the disappearance of the eruption ; only rarely were they distinctly hemorrhagic, taking the form of petechiæ. They appeared at variable periods in the course of the attack, involved trunk and extremities and were attended with but little itching ; their appearance was not associated with any elevation of temperature, and they furnished no prognostic indication.

The temperature likewise afforded no guide in prognosis. Recovery took place in some cases in which the temperature had fallen as low as 93° F.

The stools were flocculent, at times resembling rice-water, at other times stained yellowish ; in elderly persons in particular, admixture of blood was common.

Metrorrhagia was frequently observed in women ; abortion or premature labor was common in pregnant women. Advanced pregnancy and chronic alcoholism were most unfavorable complications.

True fibrinous pneumonia was encountered but exceptionally, and then unattended with febrile movement. Lobular pneumonia was infrequent ; as was also the association with enteric fever and with scarlatina. Diphtheric and septic complications were likewise uncommon.

Full and careful statistics, in course of preparation by Professor Rumpf, Director of Hospitals, will shortly be published, and may be expected to illumine many of these associations and other interesting points.

From a therapeutic point of view the recent epidemic is remarkable for the fact that intravenous infusion was for the first time practised on a most extensive scale in many hundreds of cases, being not infrequently repeated a number of times in a single case. Besides this, subcutaneous infusion had warm advocates. Landois's method of centripetal arterial infusion was practised alone by Dr. Schede. When it is considered that these various procedures were employed only in the severest cases, the estimated percentage of recoveries (25 per cent) will appear a fair one.

A 0.6 per cent solution of sodium chloride was the one most commonly employed ; at times a 0.1 per cent solution of hydrogen dioxide (Dr. Rumpf) was used ; less commonly mild antiseptics, such as thymol (Dr. Heinleth), were added to the solutions ; in a number of cases slow infusion was conjoined with sweat-baths (Dr. Zippel). The volume of fluid infused varied from two to four pints ; the temperature preferably 104° F. Unpleasant complications were not encountered ; inflammation at the site of puncture, as well as septic embolism, in consequence of imperfect sterilization of the solutions and apparatus employed, was extremely rare. The immediate result of the infusion was always striking, as a matter of course frequently of but brief duration ; renewed vomiting and renewed diarrhœa being followed by a reproduction of the cyanosis, the pulselessness, the dry tongue and the vox cholericæ that had but disappeared.

Of other symptomatic measures hot baths proved efficacious in counteracting the cramps. Enteroclysis, by means of solutions of tannic acid after the method of Cantani, was in some cases attended with remarkable results.

Salol, which was universally used early in the epidemic,

proved distinctly not of avail, given either by the mouth or injected beneath the skin in ethereal solution.

Calomel again earned much confidence for itself; and, given frequently in minute doses (gr. $\frac{1}{60}$) or less frequently in larger doses (gr. jss.) often favorably modified the course of the disease.

The other intestinal antiseptics were all soon abandoned. Opium suffered a similar fate; given internally it seemed to do harm; in a small number of cases, given subcutaneously in aqueous solution in small doses, before the occurrence of collapse, it appeared to exert a favorable influence. For the vomiting, cocaine and chloroform, as well as irrigation of the stomach, were frequently employed, with satisfactory results.

When coma had developed (and its occurrence was not prevented by the infusions), all therapeutic measures, including sweat-baths, venesection, infusions, diuretics proved fruitless.

The treatment instituted in the algid stage by Professor E. Klebs, by means of subcutaneous injections of anticholerin, a metabolic product of bacterial activity like tuberculocidin, and obtained from pure cultures of cholera-bacilli, is worthy of mention, and encourages the hope of further progress upon the same lines. The injection was followed by an elevation of the temperature during the attack, and a subsequent secondary febrile stage failed to appear. The proportion of recoveries is not at all unfavorable, but the number of cases treated with anticholerin is entirely too small for reliable conclusions to be arrived at.

— Of fluids, much coffee, tea, and weak hydrochloric acid lemonade were given; carbonated waters seemed to induce vomiting. Ice was well borne; so also was oatmeal gruel with red wine. Injections of oil of camphor were almost universally employed as a stimulant.

The total mortality in the New General Hospital exceeded 50 per cent. The number of cases received into the various hospitals may be estimated as greater than 8000.

What has been said in the preceding has been drawn largely from observations made in the New General Hospital and in the infirmary under my care. In the remarks that follow upon the anatomic features of the epidemic the experience of

the New General Hospital will be detailed. In this hospital 516 post-mortem examinations were made by the prosector, Dr. Fraenkel, together with his assistant, Dr. Deycke; in many cases only the abdominal viscera were examined.

In all cases the renal lesions described in previous epidemics (Griesinger, Cohnheim, Klebs) were found. These consisted in destruction of the secreting epithelium, particularly in the convoluted tubules, appearing at first as an acute swelling, and later as a direct disintegration and destruction of the protoplasm, as a result of which, in contrast with the conditions present in cases of coagulation-necrosis, the nuclei were well preserved. Macroscopically, the enlarged kidney presented a characteristic reddish-brown tint. In no case were there evidences of a productive inflammation. These changes appeared as early as a few hours after the onset of the disease; in cases in which the attack was further advanced many casts were found in the lumen of the uriniferous tubules. In a not inconsiderable number of cases, but never before the end of the first week, extensive fatty degeneration of the parenchyma of the kidneys was found; the organs were large and yellow, the dark bluish-red medullary substance presenting a marked contrast to the yellow cortex. Microscopically the epithelium was found to be in a condition of profound fatty degeneration, with the presence of large oil globules, and bearing the closest resemblance to the changes found in cases of phosphorus poisoning.

The conditions found in the bowel corresponded with those that had already been described—death of the superficial epithelium, often with necrosis of the villi, and the penetration of the characteristic bacilli into the villous structures and the lumen of the follicles of Lieberkühn. The destruction of the epithelium was evident in examinations made as soon after death as possible, and was clearly a vital and not a cadaveric change. A well-marked diphtheritic process in the bowel was of less common occurrence.

Hemorrhagic infarction of the endometrium was observed in 65 per cent of post-mortem examinations of adult women. In a number of these cases there was also hemorrhage into the stroma of the ovaries. A diphtheritic process was rarely found in the vagina, and still more rarely in the bladder.

In isolated cases degenerative processes were found in the muscles of the larynx and in the diaphragm (Dr. Boltz). Regressive changes were never found in the liver, though frequently in the heart muscle. Hemorrhages into the medullary tissue of bone appeared to be characteristic of recent cases.

Comma bacilli could not in any case be cultivated from the blood of internal organs, with the exception of the intestine. In one case in which the wall of the stomach presented superficial necrosis, invasion by typical bacilli was demonstrable.

Comma bacilli were looked for in all cases ; as also in the many post-mortem examinations made by Dr. Simmonds at the old German Hospital—for the first time upon so large a scale in Europe. The conclusions of Koch were again confirmed throughout their entire range. In fatal cases the specific bacilli were found present in the intestinal contents until the eighteenth day of the disease ; on the other hand, in some cases comma bacilli could no longer be found at a comparatively early date. From a study of their behavior in cultures in milk and in gelatin of varying degrees of alkalinity, E. Fraenkel * succeeded in demonstrating certain new biological peculiarities* of the cholera bacillus. As the epidemic began to subside it became possible to pursue the bacteriological diagnosis also clinically ; in the last weeks of the epidemic this procedure was adopted in every case, both within the hospitals and without.

On account of the great demands made upon the time and resources of the physicians, it was not possible to study bacteriologically the large number of cases of mild and transient intestinal derangement that were particularly numerous at the beginning of the epidemic. That such cases are etiologically instances of cholera, as numerous clinical observations in this and in other epidemics would lead one to surmise, has already been demonstrated by Cantani† by the detection of cholera bacilli in the stools. This observation was confirmed in some cases at Hamburg and in some at Berlin.‡

* Dr. Eugene Fraenkel, *Deutsche medicin. Wochenschr.*, 1892, No. 46, p. 1047.

† *Berliner klin. Wochenschr.*, 1892, No. 37, p. 914.

‡ *Ibid.*, No. 39, p. 972.

Most extensive investigations in this direction during an epidemic of cholera would have been necessary to have enlarged the range of our views concerning the specific infections, and to have furnished grounds for a positive conclusion as to the part played by the individual disposition to a definite and well-known disease poison. This important factor, in its intimate nature unexplained and unknown though it may be, cannot be ignored in any consideration of the doctrine of the contagiousness of certain bacteria.—*American Journal of Medical Sciences*, February, 1893.

ELECTROLYTIC METHODS OF DISINFECTION.

REFERRING to the fact that at the time of the outbreak of cholera at Havre and Rouen the prefect of the Seine utilized electrolytic methods of disinfection to combat the epidemic, *Electricite* says that the system employed was that of Eugene Hermite, which involves the electrolysis of common salt or any other of the chlorides, producing a discoloring and disinfecting solution. The boiler and engine are located on the ground floor, while the dynamo and electrolytic bath are placed in the room above. Sea water, or a brine in which sea salt has been dissolved in the proportion of $2\frac{1}{2}$ kilogrammes to the cubic metre, is introduced into the electrolytic vat. Under these conditions there are formed hypochlorites, or at any rate combinations of oxygen and chlorine possessing the power of destroying malodorous products and infectious germs. This disinfecting and antiseptic solution is drawn into a reservoir, whence it is piped to the street. It is used for washing, etc.

At the present time, when matters of sanitation demand special attention, and when the problem of rendering sewerage innocuous demands solution, the electrical means of disinfection become of paramount importance. Sewage from the Paris mains is partly employed in irrigation in the plains of Gennevilliers and Asheres, on the left bank of the Seine. The system was connected in 1872, and several hundred acres are now under treatment. During part of the year irrigation is not possible, and even if it were there are still collected in

these fields almost all the disease germs of the city of Paris. The land becomes then a place for germ culture, and is a constant menace of an epidemic of infectious disease. It seems to be both necessary as well as prudent to sterilize the sewage.

The several electric processes of purification will be recalled. Among others are that of William Webster, tried in England, and that of Hermite, which has for some years been employed at Rouen, with results which, if not decisive, are at least very encouraging. These processes are familiar. The sewage water, with some chloride added (common salt or chloride of iron, for example) is caused to pass through the electrolytic process. This direct means of treatment is perhaps impracticable in a city like Paris, inasmuch as the amount of sewage water reaching the collecting reservoir at Asnieres ranges from 300,000 to 600,000 cubic metres daily ; but an indirect method is perfectly feasible, which would consist in adding to the sewage a concentrated solution of electrolytic hypochlorite.

The problem of electrolytic disinfection becomes simple and practicable wherever sea water is procurable. On board vessels, where motive power is available, it will be a simple matter to prepare the solution ; and seaports, which are nearly always infected, can be readily supplied with this simple chlorine disinfectant. Let the sanitary commissions of ports, which so often are the starting points of epidemics, utilize these processes, and we will no longer see cholera at Toulon, or at Havre, or at Hamburg. No antiseptic can be prepared more economically than electrolyzed sea water.

“NORWAY ITCH.”—At the recent meeting of the Indiana Academy of Science, Dr. Robert Hessler, of Indianapolis, read a paper on “An Extreme Case of Parasitism.” It was a case of that extremely rare and almost extinct form of the itch known as “Norway itch,” the *Scabies Norvegica* of Hebra, and who first described it in 1852. The paper was prefaced by some remarks on the itch mite and on the itch. It was not until 1835 that the mite *Sarcoptes scabiei*, DeGeer, was universally recognized as the cause of the itch. There is no uniformity among medical authors concerning the scientific

names for the mite. *Acarus scabiei* and *Sarcoptes hominis* are frequently given in medical works. The size is also variously given, from “very minute almost microscopic” up to “the size of a pin-head.” Scabies, or the itch, is the result of the presence of the human itch mite on the body. Occasionally, although rarely, mites from the domestic animals produce a similar eruption on the human body. In an ordinary acute or epidemic case of the itch the number of mites is quite small, probably rarely exceeding one hundred adult animals. Norway itch is so rare that modern treatises on skin diseases, especially those of our country, do not describe it, very few even mention it. The writer is inclined to believe that a case of this kind corresponds, medically, to a “freak” or “sport” of the naturalist or evolutionist ; it shows us what was formerly of frequent occurrence—owing to uncleanness and a want of proper parasitocides. The afflicted man when first seen was covered with thick, creamy-white, leathery scales. “He was covered with scales like a fish.” Some of these scales measured over one inch in diameter and one tenth inch in thickness. These scales were not crusts or scabs, they were overgrowths of the skin due to increased cell activity from the irritation of the mites. A constant shedding of these scales was going on, a handful could be gathered daily. In a search for the cause of this skin eruption, the doctor found the mites and at once established the diagnosis. The epithelium—that is, the scales—were found to be full of mites and eggs and riddled with burrows or passages. Under appropriate remedies the mites were soon exterminated. The cause of the disease once removed, the skin soon regained its normal character and the patient was cured. Dr. Hessler made a calculation of the total number of mites and eggs on the body of the man when first seen. Pieces of scale of a definite size were stained, imbedded, sectioned and mounted in serials. Diagrams were made of each section, indicating the position of the mites and eggs, and the count made therefrom. A simple calculation gave the figures for the entire body. Here are the results : Eggs and empty shells, 7,004,000 ; mites in all stages of development, 2,009,000.—*Science*.

PREVENTION OF DISEASE AND DEATH.

LIFE underwriters are particularly interested in the vital statistics of the country, for the reason that the mortality experience of the companies has an important bearing upon the cost of insurance, and to obtain a favorable mortality rate each year is an end eagerly desired. That the death-rate is very considerably augmented year by year through causes largely preventable is an unquestionable fact, and life insurance companies should hail with satisfaction, therefore, any and all measures which tend directly or indirectly to reduce this rate. Theoretically boards of health accomplish just that result, but there are not a few who affect to believe that practically they do not do so. With a view of getting some light on that matter we have been examining some of the results accomplished by the Michigan State Board—one of the best in this country—kindly furnished us by Dr. Baker, the secretary, all illustrative of the results accomplished by the board in the control of those two dreaded diseases of childhood, diphtheria and scarlet-fever. The following statistics are of interest: In 1889 the average number of cases per outbreak where isolation and disinfection were neglected was 11.66 and the average number of deaths 2.63. On the other hand, in localities where the directions of the board as to isolation and disinfection were strictly enforced the average number of cases was 1.56 and the average deaths 0.22—a marked difference. The similar record for scarlet-fever in the year 1888 shows 11.87 deaths per outbreak with an average of .54 deaths where restriction were not enforced, while the average per outbreak was but 2.22 and deaths .08 where isolation and disinfection were enforced. These figures emphasize very strongly the beneficial results of restrictive measures intelligently applied both in the prevention of these two diseases and the modification of the death-rate when they do occur.

The Board of Health was organized in 1874, and a comparative mortality rate in the State before and after its establishment is of interest as illustrating the effects of restrictive measures. For the five years 1869-73 before the Board was established the deaths from scarlet-fever were 4.85 per 10,000

inhabitants, while during the fourteen years 1874-87 the deaths per 10,000 were but 2.45. The deaths per 10,000 inhabitants from small-pox for the same periods were before the employment of restrictive measures .85, and after .19. In 1879 the Board undertook the restriction of typhoid-fever, and with results which, while not quite so marked, were sufficiently so to demonstrate the value of such measures. Thus from 1869-78, that is before any restrictions were put upon the disease, there were 3.77 deaths per 10,000 inhabitants, while from 1879-89, representing the period when efforts were made to restrict it, the deaths were 3.08. This is a considerable difference in favor of restrictive measures, but it is really greater than it appears, for the reason that considerable allowance must be made for the necessarily imperfect and incomplete workings of the plans in their earlier years. It requires time to get such measures into operation so that their effect becomes manifest, and the reduction of the mortality rate through restriction was therefore considerably greater than the above figures would indicate. But in any event the results have been such as to prove conclusively that much can be done to diminish the death-rate by intelligent measures vigorously applied. The Board of Health believes that consumption is also in large measure preventable, and has recently attempted its restriction by the circulation of specific instructions and suggestions. Not less than 2500 deaths occur in Michigan each year from this disease, and it is claimed that a large part of this mortality can and ought to be prevented.—*The Indicator*, May, 1893.

SANITATION AND THE COMMUNION-TABLE.—The agitation concerning the advisability of doing away with the communion-cup in church services, and substituting therefor individual cups for each member, is bearing fruit. Our friend, Dr. A. J. Longfellow, of Fostoria, O., at the last quarterly conference of the M. E. Church, introduced the following resolution: "Resolved, That the church purchase four hundred little wine-glasses, and each communicant receive the wine out of a glass that no other person has used, and the bread be passed on baskets or plates, and that it be not handled or broken by the preacher."—*Cincinnati Lancet Clinic*.

TENEMENTS IN LONDON.

ABSTRACT OF A REPORT MADE BY A COMPANY SPECIALLY INTERESTED IN THE RENTING OF WORKINGMEN'S MODEL HOMES—SANITATION AND HOME LIFE IN THEIR BUILDINGS.

LONDON, ENGLAND, April 19th (Special Correspondence to *The Voice*).—One of the features of the growth and rebuilding of London and other large cities is the provision for the housing of the industrial poor displaced by modern improvements. The construction of railways, the building of bridges, the widening of streets and the removal of slums turn out of their dwellings numberless poor, and the erection of factories and warehouses in new localities causes a fresh demand for accommodation for workers in neighborhoods hitherto free from the inrush of labor. In the north, south, east, west, and central parts of the great metropolis, street after street of the narrow, low, badly drained, tumble-down houses of the last century, the abode of the poorest of the toilers and the criminal classes, have come down by the edict of the local authorities. That grand improvement, the Thames embankment, caused the demolition of miles of riverside houses, and their occupants had to be provided for somewhere. In many cases the ordinary suburban dwelling-house, with its eight, ten, or twelve rooms, has been made to meet the difficulty by being let out in single rooms to the profit of the landlord and the deterioration of the neighborhood as a home for the middle classes. In other cases whole districts of cottages have been built, which is a good way for those for whom workmen's trains are available. Queen's Park is such a district. But the great refuges of the unhoused are the immense barracks termed "improved dwellings." These edifices, when they are built for the wealthier classes, are euphoniously called "flats," "chambers" or "mansions." Grosvenor Mansions certainly sounds better than Artisans' Dwellings, but "what's in a name" if they are both equally comfortable? One alarming point about colossal homes for either class is that in the event of fire their passages and staircases form so many currents to fan the flames, and escape is impossible.

In the great seaport of Liverpool the Victoria Apartments are an example of model industrial dwellings. In London there are the Peabody Buildings, the outcome of the munificence of the millionaire philanthropist of that name, and dozens of other buildings, which are the result of private or public enterprise. One of the largest of these undertakings is the Improved Industrial Dwellings Company, with a capital paid up of £550,000, and a loan of £464,000 from the Public Works Commissioners, of which £116,000 has been repaid. This limited company was incorporated in 1863, and among its seven directors are Walter Morrison, M.P., known for his great interest in co-operation, and Sir Sydney Waterlow, who gave his private house and grounds for a public park. Another loan of £20,000 will shortly be taken up from the Public Works Department. The directors contemplate capitalizing £55,000 of the Public Works Loan Repayment Account, amounting to £67,000. The rents and receipts from dwellings in occupation during the past year amounted to over £106,000, and the outgoings are roughly estimated at £43,000. Of the balance (nearly £63,000), after contributing to the Leasehold Redemption Fund, repaying £11,452 to the Loan Commissioners, and transferring £10,000 to the Equalization of Dividends Fund, there remained nearly £28,000 profit, out of which a dividend of 5 per cent was paid, which shows that supplying workmen with good homes on business principles can be made to pay a satisfactory dividend.

The company's dwellings are well occupied, maintained in thorough repair, and their sanitary condition receives constant attention. There are 45 buildings or estates in the possession of the company, containing 5530 tenements. Each tenement is structurally severed, and contains separate domestic conveniences, such as kitchen or scullery, water supply, closet, coal-place, etc. The company also manages 259 dwellings belonging to private persons, and 150 houses on another estate, the total number of buildings under their control being 6123, and accommodating about 31,000 persons. The death-rate on the property was only 13.3 per 1000—the usual death-rate of crowded districts being 35 per 1000. With such a low death-rate the birth-rate generally exceeds the average, which is the case in the company's houses. A novel and desirable

feature is that 53 weekly tenants availed themselves of the country and seaside convalescent homes in connection with the Victoria Public Fund. The 5530 tenements represent as many families, occupying 18,862 rooms, with 117 shops and 41 workshops. The average rents are \$1.60 for 2 rooms and a scullery, and more if in a good position, such as on a ground or first floor.

There are altogether in London 475 blocks of model dwellings of various ownerships, containing 35,770 tenements. Mr. Charles Booth, for the purposes of his noble work, "Life and Labor of the People in London," had 346 blocks visited. The sanitation was very good in 58, but there was light and air in only 54. Sanitation was good in 172, fair in 63, bad in 30, and very bad in 23. The light and air provided was in 124 cases good, fair in 135, bad in 23, and very bad in 10. Miss Octavia Hill, reporting on the influence of block dwellings on the character of the tenants, observes, that in its best forms life in such buildings is "a life of law, regular, a little monotonous, and not developing any great individuality, but consistent with happy home life. It promises to be the life of the respectable London workingman." That is the prospect in well-managed blocks of steady tenants. A few black sheep of the rough and reckless class can turn a block into an inferno. "What life in blocks is to the less self-controlled," writes the same lady, "hardly any words of mine are strong enough to describe, and it is abhorred accordingly by the tidy and striving wherever any, even a small number, of the undisciplined are admitted to blocks, and where, being admitted, there is not a living rule exercised." The following are some of the consequences: "Sinks and drains are stopped; yards provided for exercise must be closed because of misbehavior; boys bathe in drinking-water cisterns; wash-houses on staircases and staircases themselves become the nightly haunt of the vicious and the Sunday gambling-places of the boys; the yell of the drunkard echoes through the hollow passages; the stairs are blocked by dirty children, and the life of any decent, hard-working family becomes intolerable." Miss Hill's experience is rather discouraging, and she considers it of the utmost importance that a number of small houses should be provided wherever possible, and advises well-meaning land-

lords that to clear away small houses and erect blocks is not to benefit the poorer class of people. It may be so, but land in the populous parts of London is so valuable that rich and poor alike are being housed on the block system. Small house estates are only possible in the remote suburbs, like the before-mentioned Queen's Park.

Another lady, who has lived for years in different dwellings, gives a graphic and more hopeful account of the block system. At five in the morning she hears the tenant overhead. He is a railway carman, and gets up before his wife, whose sewing machine has been going until one in the morning. He gets his breakfast, gives a sip and a crust to the wakeful baby and sends it to sleep, and then his steps are heard going downstairs. At eight o'clock there is scraping on the other side of the wall. A woman, who has two daughters going out to work, is raking out the grate to light the fire and get their breakfast. At 8.30 the carman's children are getting up; the eldest is dressing her little brothers for school. When school is over there is a hubbub of children's voices, and in the afternoon a great torpor falls on the buildings. That is the time when the women call on one another, and there is quiet till the boys and girls come back. Soon after their return savory smells float out on the landings. The favorite meal of the day, the tea, is being made ready for the husband's return. The carman's wife has sprats, and aware of her neighbor's liking for this fish, sends her a plateful of them by one of the children. The child reports that a neighbor, the wife of a night watchman, is ill, and that "mother is going to sit up with her." The neighbors thus take their turns in watching by the sick-bed. In the evening some of the men go to the club and sing songs or talk politics; some drop in at the favorite public house, but the majority simply stay at home with the wife and children. The carman overhead is essentially a family man and plays with his boys as he puts them to bed. Sometimes a friend looks in, but not often; and he goes to bed at 9.30. Another tenant, a tram conductor, reads aloud from the evening paper as he and his wife sit at tea.

This is not an unpleasant picture of life in model dwellings, and the lady who experienced it is of the opinion that the drawbacks are compensated by the advantages.

M. Q. HOLYOAKE.

SANITATION IN PHILADELPHIA.

LETTER FROM THE PRESIDENT OF THE PHILADELPHIA BOARD
OF HEALTH IN RESPONSE TO AN INQUIRY FROM THE
EDITOR OF THE "MEDICAL NEWS."

OFFICE OF THE BOARD OF HEALTH, CITY HALL,
PHILADELPHIA, April 21, 1893.

ACTIVE efforts have been made to prevent cholera the coming season. So far as quarantine is concerned, the federal authorities have established a station at the Delaware Breakwater, which is fitted up with barracks, hospitals, disinfecting apparatus, cremating furnace, etc. There is ample accommodation there for treating the sick and for detaining "suspects" and for purifying articles on shore, but it is impracticable to disinfect vessels in the open sea most of the time. Therefore, arrangements have been made for fitting up a disinfecting station at Reedy Island, and it is the determination of the federal quarantine authorities to have this station in readiness early in the season. In addition to these facilities we have, as you know, the lazaretto-quarantine station at Tinicum, which is complete in all respects as a quarantine station, with the exception of a wharf close to the deep-water channel with disinfecting apparatus, which had been arranged for, so as to facilitate the treatment of vessels. I would like it to be understood that we have disinfecting apparatus, but it is not advantageously situated. When the Government station at Reedy Island is equipped there will not be the same necessity for disinfection and cleansing of vessels at the lazaretto. We believe that the river and bay will be well protected, and that the approach of cholera by way of the Delaware basin will be guarded against.

The effort is being made, and will be continued, to put the city in a thoroughly clean condition. This work must be performed by the authorities, with the full co-operation of citizens. The streets, alleys, public places, will be thoroughly cleansed and kept clean. A very large number of small streets, in the least sanitary portions of the city, will be paved

with asphalt or some smooth impervious pavement. A large sum of money will be expended for this purpose. Garbage is to be transported beyond the limits of the county. In the lower section of the city, namely, all south of South Street, the garbage is now being incinerated in a very successful manner by a new process. The keeping of hogs has been prohibited, and nuisances resulting therefrom in connection with the feeding of garbage to the animals will not occur this season.

An extensive house-to-house inspection has already been commenced in those districts in which cleanliness does not prevail. This inspection will be broadened by the addition of inspectors, and it is proposed to continue it throughout the spring and summer. You will notice by the papers that citizens have been urged to turn their attention to house-cleaning immediately, and to lend their co-operation with the authorities, so that everything will be in excellent sanitary condition. Already a very considerable amount of work has been accomplished. The Health Officer states that recently he has cleaned alleyways in the rear of over five thousand houses.

The aid and co-operation of the entire police force, numbering over two thousand men, have been secured in promoting general cleanliness. The police have been instructed to note carefully the condition of the streets and public places and of alleyways, courts, yards, and lots, and make daily reports of any offence against sanitary laws, which reports are analyzed and referred to the appropriate bureau for action.

In regard to the water supply I have very little to say that is new. A change in the quality of the water supply cannot be brought about quickly. So long as we derive the supply from the Schuylkill watershed we may expect to have a defiled water poured into our basins, and it is therefore most necessary that provision should be made for subsidence and filtration upon a very large scale. This has been done in foreign cities and in some places in this country with great improvement to the supply, and can be done in Philadelphia, and should be done, and done promptly. The water supply, as at present derived, tends to become less and less wholesome, while the means of improvement referred to are neglected. As a measure of primary importance to the public

health, arrangements should be entered into for securing water from a source less liable to pollution, say from above the Delaware Water Gap, where the watershed could be controlled by the municipality and placed under watchful supervision. The Mayor and Director of Public Works are both intensely interested in this subject, and anxious to have measures set on foot looking toward improvement in the quality of the water supplied to the citizens of Philadelphia. As a temporary and safe expedient, we recommend that citizens boil all water used for drinking purposes, and during the coming summer we shall continually urge this means of protection.

Yours very truly,

WILLIAM H. FORD, M.D.

—*Medical News*, April 28th, 1893.

PROPOSED CHANGE IN THE CORONER SYSTEM OF NEW YORK.

THE following is the text of the bill drawn up by a committee of the Section on Public Health of the New York Academy of Medicine, and presented to the general meeting of the Academy, with the recommendation that it be received, ordered to be printed so as to be presented to the Fellows of the Academy for careful consideration, and transmitted to other local medical societies so that their co-operation might be asked for in order to accomplish the reform evidently demanded in the administration of the office :

AN ACT TO TRANSFER CERTAIN DUTIES NOW PERFORMED BY
THE CORONERS OF THE CITY AND COUNTY OF NEW YORK
TO THE BOARD OF HEALTH, AND TO DEFINE THE METHOD
OF PROCEDURE IN CASES OF SUDDEN OR VIOLENT DEATHS.

The people of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. In all cases in which a coroner of the city and county of New York, or a coroner's physician, was heretofore required by law to make a medical examination, and in all

cases mentioned in section seven hundred and seventy-three of the Code of Criminal Procedure, the Board of Health of said city and county shall have complete jurisdiction and authority. Said Board, by one or more of its physicians, appointed as hereinafter provided, shall perform the duties and make the examinations required by said section, and shall proceed without the aid or assistance of jurors. Said physicians shall make duplicate reports of their examinations and all of their proceedings, stating therein the cause of injury or death, and file one copy with the Board of Health and the other with the district attorney of said city and county.

SEC. 2. The Board of Health of said city and county of New York is hereby authorized to create a bureau to be known as the "Bureau of Inquests," and to appoint five competent physicians, to be known as "Inquest Physicians," who shall receive a salary not exceeding the sum of three thousand dollars each, and a clerk, to be known as the "Inquest Clerk," who shall keep a complete record of all inquests, and shall receive a salary not exceeding the sum of two thousand dollars, such salaries to be appropriated by the Board of Estimate and Apportionment when fixing their provisional and final estimates for the Board of Health.

SEC. 3. All the duties and jurisdiction heretofore vested in a coroner or the coroners of the city and county of New York, affecting civil actions, proceedings, and writs, and the service and execution thereof, shall be performed by and repose in the "collector of assessments and clerk of arrears" of said city and county.

SEC. 4. It shall be the duty of any citizen in the city and county of New York, who may become aware of the death of a person who shall have died from criminal violence, or by a casualty, or suddenly when in apparent health, or when unattended by a physician, or in prison, or in any suspicious or unusual manner, to report such death forthwith to the Bureau of Inquests, or to any police officer, who shall notify the Bureau of Inquests without delay of such death; and any person who shall wilfully neglect or refuse to report such death as above required shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment for a period not exceeding one year, or by a fine not exceeding

five hundred dollars, or by both such fine and imprisonment.

SEC. 5. Any person in said city and county, except an inquest physician, who shall wilfully touch, remove, or disturb the body of any one who shall have died in the manner described in the last section, or who shall wilfully touch, remove, or disturb the clothing, or any article upon or near such body, without a written order from an inquest physician, shall, upon conviction, be adjudged guilty of a misdemeanor, and shall be punished by imprisonment for a period not exceeding one year, or by a fine not exceeding five hundred dollars, or by both such fine and imprisonment.

SEC. 6. Whenever information is given at the Bureau of Inquests of the Board of Health that there has been found, or is lying, within the jurisdiction of said board, the dead body of a person who is supposed to have come to his death by violence, an inquest physician shall forthwith repair to the place where such body lies and take charge of the same, and if on view thereof and personal inquiry into the cause and manner of the death, he deems a further examination necessary, he shall in the presence of two or more discreet persons, whose attendance he may compel by subpoena if necessary, make an autopsy, and then and there reduce to writing every fact and circumstance tending to show the condition of the body, and cause and manner of death, together with the names and addresses of said witnesses, which record he shall subscribe. Before making such autopsy, he shall call the attention of said witnesses to the position and appearance of the body.

SEC. 7. If upon such view, personal inquiry, or autopsy, he shall be of opinion that the death was caused by violence, he shall at once notify one of the coroners of the city and county of New York, and shall file a duly attested copy of the record of his examination and autopsy in the office of said coroners, in addition to the reports made in accordance with section first of this act. The coroner shall thereupon hold an inquest which shall consist of the testimony of the inquest physician, and that of any other witnesses that the coroner may find necessary. Said inquest may be private, in which case any or all persons other than those required to be present by the provisions of this act may be excluded from the place where the

same is held, and said coroner may also direct the witnesses to be kept separate, so that they cannot converse with each other until they have been examined. The district attorney, or some person designated by him, shall attend the inquest, and may examine all witnesses.

SEC. 8. The coroner shall have power to issue subpœnas for witnesses, returnable either forthwith or at such time and place as he shall appoint therein, and it shall be the duty of the coroner to give due notice of the time and place of the inquest to the inquest physician who examined and reported on the case, and it shall be the duty of said physician to attend said inquest.

SEC. 9. The coroner shall, after hearing the testimony, draw up and sign a report, in which he shall find and certify when, where, and by what means the person deceased came to his death, his name, if known, and all material circumstances attending his death; and if it appears that his death resulted wholly or in part from the unlawful act of any person, he shall further state, if known to him, the name of such person, and of any person whose unlawful act contributed to such death, which report shall be returned by him to the office of the district attorney of the city and county of New York.

SEC. 10. Any police justice in the city and county of New York is hereby authorized and empowered, in case the attendance of a coroner cannot be procured within twelve hours after the discovery of a dead body, upon which an inquest is now by law required to be held, to hold an inquest thereon, in the same manner and with the like force and effect as coroners.

SEC. 11. From and after the passage of this act no person shall be eligible to the office of coroner who is not a duly qualified lawyer.

SEC. 12. All acts or parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 13. This act shall take effect on the expiration of the terms of office for which the present coroners of the city and county of New York were respectively elected.

THE CLIMATE AND MINERAL SPRINGS OF NORTH CAROLINA.*

By A. N. BELL, A.M., M.D.

NORTH CAROLINA is situated between lat. $33^{\circ} 53'$ and $36^{\circ} 33'$ north and long. $75^{\circ} 25'$ and $84^{\circ} 30'$ west, comprising an area of 50,704 square miles. The State may be physically divided into three sections. First, the coast and swamp-land section, extending from fifty to eighty miles inland, which is for the most insalubrious. Second, the middle section, extending from the termination of the swamp-land section, beginning at an altitude of about four hundred feet above sea-level and extending to the foot of the mountains, where the third section begins, at an altitude of a thousand to fifteen hundred feet, increasing in altitude and embracing the whole western part of the State—the mountainous region.

The middle section comprises a broad undulating region, for the most part covered with pitch pine. This middle pine-forest region gradually rises into Western North Carolina, no part of which is less than fifteen hundred feet above the level of the sea. Here the Alleghanies reach their greatest altitude and show the loftiest peaks east of the Mississippi River. The range nearest the coast is the Blue Ridge, while the succeeding groups are known as the Black, Smoky, Iron, Roan, and Unaka mountains. The lowest points or gaps in the Black Mountains are nearly as elevated as Mount Washington, while Mount Mitchell, according to the measurement of Professor Guyot, is four hundred feet higher, or six thousand seven hundred and seven feet above the level of the sea. The tableland or mountain plateau between the ridges consists of a series of well-watered, forest-covered, or fruitful valleys and hills, from two thousand to three thousand feet above the level of the sea, and is one of the most picturesque and salubrious sections in the United States.

The annual mean temperature of the middle, or pine-forest section is about the same as that of the spring and autumn

* Read at meeting American Climatological Association, Philadelphia, May 27th, 1893.

months, 58° ; summer, 78° ; winter, 40° . The average annual rainfall in this region is about forty-four inches.

The annual mean relative humidity is about 65° ; spring, 59° ; summer, 66° ; autumn, 68° ; winter, 69° .

The pine-forest region is of exceptional healthfulness throughout the year.

In the third or mountainous section of the State, embracing an area of about five thousand square miles, the air is from ten to fifteen degrees colder than in the middle section, but less humid and more bracing.

The climate of Ashville, at an elevation of twenty-two hundred and fifty feet above sea-level (lat. $35^{\circ} 36'$ north), in the lack of meteorological records for the greater altitudes, is offered as a medium measurement of the climate of the whole section.

The record of the mean annual temperature at Ashville for a series of years is 54.20° . Spring, 53.1° ; summer, 71.70° ; autumn, 54.8° ; winter, 38.2° . This place in particular is famous for the coolness of the summers, the temperature rarely rising above 84° in the hottest days.

The average rainfall in spring is 14.05 inches: summer, 16.7; autumn, 6.5; winter, 8.4; annual, 34.21.

The winter climate particularly is remarkable for its dryness and equability. It possesses all the advantages of the most highly favored winter resorts of Southern Europe, besides the additional advantage of freedom from the sudden changes of temperature common at those resorts.

In the higher altitudes of this region, however, the variations of temperature are more considerable, frequently amounting to a difference of twenty degrees between the days and nights; requiring special care on the part of invalids with regard to clothing adapted to the change on the going down of the sun, and the use of woollen blankets for the night.

Of other localities in this section, in default of meteorological records, I submit the following abstract of a description by Dr. Henry O. Marcy, of Boston, shortly after a visit five years ago:

"To any who seek entrance to the mountain region from the east, Ashville will be the central point of interest, and, if actuated by the restlessness of most of our countrymen, the

first stopping-place. There can be no doubt but many localities upon the easterly and southerly slopes of the Blue Ridge present great attractions for invalids. A number of my medical correspondents write that some of these localities are especially desirable because of the dryness of the atmosphere and freedom from fog, which, at certain seasons of the year, prevail to a considerable extent through the mountains.

“The same general features of the landscape and climate here prevail. Along some of the southerly slopes the ‘no frost line’ is clearly perceptible, and sanatoria, well selected at such localities, would offer certain marked advantages. It is greatly to be regretted that careful observations have not been made at some of these places as to the equability of heat, amount of sunshine, rainfall, etc., as well as to the absence of severe cold—a fact so abundantly substantiated that it cannot be doubted, although a little distance away frost and ice are of common occurrence.

“On the Western North Carolina Railroad, at Morgantown, is located the State Asylum for the Insane, selected because of the healthfulness and beauty of the surroundings.

“The Piedmont Springs, fifteen miles north of Morgantown, have been a favorite resort for a generation, and a long, rambling hotel, venerable in service, offers attractions of quiet and rest. The springs are sulphur, not unlike the White Sulphur of Virginia, and a short distance away is a fine chalybeate spring entirely free of sulphur. The surroundings are wildly mountainous, picturesque, of a rugged Swiss type.

“A few miles south of Marion, at Glen Alpine, is a large hotel, long a favorite resort of the residents of the Southeast. Here are said to be good springs of iron and sulphur. Lithia springs are reported at several places on the southeasterly slopes of the Blue Ridge, but little, however, is known of the medicinal value of the waters.

“... Near the top of the Roan a large and comfortable hotel has been erected by General John P. Wilder as a sanitarium, open during four months of the year. It is the highest inhabitable spot east of the Rocky Mountains. The difficulties encountered in the ascent make the journey a severe one for the invalid, although the railroad from Johnson City to Cranberry passes at the base of the mountain. The station

called Roan is the point of leaving the rail. It has long been claimed that the Roan offered an asylum to the victim of hay-fever unequalled, but the irony of fate has in it another illustration. Now that the recluse here can be surrounded by the comforts of modern life, the old enemy continues in attendance, for hay-fever has been reported in the entire locality the last two years, including also the region about the Grandfather.

“ A new avenue has been opened through the mountains from the south to Ashville, *via* Hendersonville from Spartansburg. Ten miles south of Ashville, amid pleasant surroundings, is the Arden Park Hotel, situated half way to Hendersonville ; also a town with good hotels, and the entire section one of beauty and interest. A little south from here is Cæsar’s Head, an abrupt ‘ fault ’ in the mountain on the South Carolina border. Much is claimed for this locality on account of its dryness, but I know of no reports of actual observations. The landscape views are extremely varied and interesting. The elevation is about four thousand feet. The hotel is well kept and a popular resort in summer. The air is pure and bracing, and many attractions are found in the immediate vicinity to interest the invalid.

“ West is Cashier’s Valley, a high tableland about three thousand four hundred feet above the sea. It is of repute as a resort for consumptives. Still further west is the Highlands, a hamlet widely advertised as a health resort. It is reached with great difficulty ; indeed, to the confirmed invalid inaccessible—long distance from the rail on either side, over roads of the worst sort. Here the average rainfall has been found to be seventy inches annually, and, judging from the configuration of the abrupt mountain ranges bordering the lowlands lying south, it is presumable the rainfall of the entire region is excessive.

“ Down the French Broad River one easily reaches, by rail, the Hot Springs, which are becoming justly celebrated. The hotel accommodations are modern and excellent, while the baths are numerous and ample. The effect of the water appears not unlike the famous hot springs of Arkansas.

“ Westward from Ashville about thirty miles is the enterprising little town of Waynesville. In the Richland Valley,

one mile away, is situated the Hayward White sulphur springs. The proprietor, Major W. W. Stringfield, is justly popular, and his new hotel has been well filled with guests. The elevation is over twenty-seven hundred feet. The valley is very lovely, and the view of the broad meadows and lofty mountain ranges as seen from the hotel is beautiful beyond description. The waters of the creek rush along with great rapidity over the whitest pebbles, and their gentle murmuring is sweet music to the troubled heart and weary brain. Much curative effect is claimed for the sulphur water, which wells up pure and cool into a marble basin at the edge of the valley. Westward from Waynesville the railroad climbs the Balsam range to a height, at the divide, of nearly thirty-five hundred feet. The dry, pure, bracing air has attracted hither invalids, who reported to me great benefit from a few weeks' residence, although the hotel is limited and designed only as a station for dining passengers. Beyond lie the beautiful broad valleys of the Tuckasegee and Little Tennessee rivers, rapid streams of considerable size, only recently reached by rail; still further westward tower the splendid ranges of the Cowee, Nantehaleh, and Valley River mountains, irregularly dividing the wide space of the base of the triangle made by the Blue Ridge and Smoky ranges. These are almost without exception clothed to the very top with the primeval forest which yet covers nine tenths of the entire territory. The country beyond the iron ways is of yet greater interest to the invalid able to 'rough it' somewhat. The roads are, of course, poor, the hotels intended as hostelries only, but the quaint, old-time manners and customs of a rude but always hospitable, honest people are a never-failing source of interest, and often of profit, to the student of men as well as nature.

"The valley of the Nantehaleh is of interest as a broad plateau between the ranges, watered by the loveliest of rivers. Its banks are thickly hedged with kalmia and rhododendrons, which in June present a mass of bloom never seen outside these mountains. The delicate branches of the graceful birches gently sway in the breeze, the music of the laughing waters fills the air; all else is the unbroken silence of the primitive forest. Mr. L. R. Finch, who resides on a cattle ranch in the Nantehaleh Valley, has sent me a daily record

of the weather during the past summer. The rainfall has been large and the variations in temperature considerable. On June 13th there was a frost and a temperature record of 30° F. I found the two weeks which I spent here during August of the present year very agreeable, although a fire morning and evening was a comfort. Frost was reported about the 20th of the month.

“The Valley River Valley surpasses all the others in beauty and picturesqueness; broad and fertile, and landscape rarely equalled, set in a mountain frame of living green, of which the eye never tires. The small hotel is ever full, and when proper accommodations can be reached by rail it will become a popular resort.” *

MINERAL SPRINGS ANALYZED.

Acidulated Waters.

Glen Alpine Spring, W. C. Kerr, analyst :

Magnesia.....	0.25 grains per gallon		
Lime.....	1.72	“	“
Iron oxide }	0.92	“	“
Alumina }			
Silica.....	1.60	“	“
Chlorine.....	0.37	“	“
Sulphuric acid.....	0.74	“	“
Carbonic acid.....	32.22	“	“
Organic matter.....	1.79	“	“

Greensborough Spring, W. C. Kerr, analyst :

Soda.....	0.27 grains per gallon		
Magnesia....	0.42	“	“
Lime.....	1.62	“	“
Iron oxide.....	0.60	“	“
Alumina.....	0.18	“	“
Silica.....	2.10	“	“
Chlorine.....	0.42	“	“
Sulphuric acid.....	0.12	“	“
Carbonic acid.....	large amount.		
Organic matter.....	1.02	“	“

* “The Climate of the Southern Appalachians.” By Henry O. Marcy, A.M., M.D., LL.D.; Transactions of the Ninth International Medical Congress, vol. v.

Calcareous or Earthy Waters.

Charlotte Mineral Spring, W. C. Kerr, analyst :

Calcium sulphate.....	36.00	grains per gallon
Magnesium sulphate.....	4.53	“ “
Sodium chloride.....	3.30	“ “
Iron.....	trace.	
Alumina.....	“	
Silica.....	18.97	“ “

Cleveland Mineral Springs, Catawba County, White Sulphur Spring, same analyst :

Calcium carbonate.....	4.50	grains per gallon
Calcium sulphate.....	18.70	“ “
Magnesium chloride.....	7.65	“ “
Calcium chloride.....	4.84	“ “

Ellerbe Spring, C. W. Dabney, Jr., analyst :

Calcium carbonate.....	3.64	grains per gallon
Calcium sulphate.....	4.56	“ “
Sodium chloride.....	0.80	“ “

Cowhead Spring, W. C. Kerr, analyst :

Magnesia.....	0.06	grains per gallon
Lime.....	1.17	“ “
Iron oxide }	0.86	“ “
Alumina }		
Silica.....	3.76	“ “
Chlorine.....	0.18	“ “
Sulphuric acid.....	1.23	“ “
Organic matter.....	5.79	“ “

Red or Iodine Spring :

Calcium carbonate.....	3.12	grains per gallon
Calcium sulphate.....	17.42	“ “

Park's Alkaline Mineral Spring, Caswell County, A. R.

Ledoux, analyst :

Calcium carbonate.....	4.80	grains per gallon
Sodium sulphate.....	1.48	“ “
Magnesium sulphate.....	1.50	“ “
Sodium chloride.....	trace.	
Iron oxide.....	3.50	“ “
Alumina.....	3.50	“ “
Silica.....	trace.	
Sulphur.....	0.15	“ “

Panacea Spring, near Littleton, W. C. Kerr, analyst :

Soda.....	2.23	grains	per	gallon
Magnesia.....	0.20	"	"	"
Potassium.....	0.70	"	"	"
Lime.....	1.20	"	"	"
Manganese.....	0.01	"	"	"
Iron oxide.....	2.18	"	"	"
Alumina.....	0.30	"	"	"
Silica.....	1.18	"	"	"
Phosphoric acid.....	0.53	"	"	"
Hydrochloric acid.....	0.81	"	"	"
Sulphuric acid.....	0.43	"	"	"

Chalybeate Waters.

Iron Spring, Madison County, —, analyst :

Magnesium.....	7.4	parts	in	1,000,000
Calcium.....	140.8	"	"	"
Iron.....	31.9	"	"	"
Manganese.....	trace.			
Silica.....	72.1	"	"	"
Carbonic acid.....	304.6	"	"	"
Organic matter.....	38.2	"	"	"

Dennison's Mineral Well, Warren County, —, analyst :

Calcium carbonate.....	12.58	grains	per	gallon
Sodium chloride.....	4.94	"	"	"
Iron.....	4.40	"	"	"
Alumina }	3.48	"	"	"
Silica }				

Kittrel Springs, Granville County, C. W. Dabney, Jr., analyst :

Iron carbonate.....	9.20	grains	per	gallon
Spring at Icard Station,				
Iron carbonate.....	2.50	grains	per	gallon
Alum Spring, Onslow County, W. C. Kerr, analyst :				
Magnesia.....	0.49	grains	per	gallon
Lime.....	4.80	"	"	"
Iron oxide }	3.8	"	"	"
Alumina }				
Silica.....	1.65	"	"	"
Chlorine.....	0.92	"	"	"
Sulphuric acid.....	0.25	"	"	"
Organic matter.....	5.16	"	"	"

Saline Waters.

Chatham Mineral Spring, C. W. Dabney, Jr., analyst :

Sodium chloride.....	28.80	grains	per	gallon
Magnesium chloride.....	36.56	"	"	"
Calcium chloride.....	39.13	"	"	"
Sulphates.....	trace.			
Nitrates.....	"			
Iron oxide.....	"			
Alumina.....	"			
Silica.....	"			

Mineral Well, Thomasville, W. C. Kerr, analyst :

Soda.....	1.09	grains	per	gallon.
Magnesium.....	0.75	"	"	"
Lime.....	1.74	"	"	"
Iron oxide } Alumina } ✓	0.14	"	"	"
Silica.....	1.01	"	"	"
Chlorine.....	2.62	"	"	"
Phosphoric acid.....	0.40	"	"	"
Carbonic acid.....	0.82	"	"	"
Organic matter.....	3.95	"	"	"

Hot and Warm Springs.

Madison County, Dr. E. Adelmarch, analyst :

Bathing Springs, 92° to 117° Fahr.

1. Sodium sulphate.....	0.03	grains	per	gallon.
Calcium sulphate.....	40.88	"	"	"
Magnesium sulphate.....	1.34	"	"	"
Potassium sulphate.....	0.36	"	"	"
Soluble silicates.....	8.97	"	"	"
Sodium chloride.....	0.91	"	"	"
Magnesium chloride.....	0.22	"	"	"
Calcium chloride.....	10.10	"	"	"
Potassium chloride.....	0.31	"	"	"
2. Sodium carbonate.....	3.68	"	"	"
Sodium sulphate.....	4.24	"	"	"
Magnesium sulphate.....	7.64	"	"	"
Iron crenate.....	2.34	"	"	"
Sodium chloride.....	2.46	"	"	"
Calcium chloride.....	11.48	"	"	"

Silica.....	3.82	grains per gallon
3. Calcium sulphate.....	17.56	“ “
Magnesium sulphate.....	7.50	“ “
Magnesium chloride }	5.00	“ “
Calcium chloride }		
Drinking (Warm) Springs :		
Sodium Sulphate.....	8.90	grains per gallon
Calcium sulphate.....	40.54	“ “
Magnesium sulphate.....	8.13	“ “
Potassium sulphate.....	0.47	“ “
Soluble silicates.....	9.54	“ “
Sodium chloride.	1.10	“ “
Magnesium chloride.....	0.37	“ “
Calcium chloride.....	8.94	“ “
Potassium chloride.....	0.50	“ “

Warm and Hot Springs, Buncombe County, in the north-west part of the State, on the western branch of the French Broad River—a beautiful and romantic region embosomed in lofty mountains—there are several springs, varying in temperature from 94° to 104°. Analysis of the water by Professor E. D. Smith (*Silliman's Journal*, vol. viii.) gives the following results :

Muriate of lime and magnesia.....	4	grains
Sulphate of magnesia.....	6	“
Sulphate of lime.....	14.05	“
Insoluble residue.....	2.05	“
Loss.....	1	“
	<hr/>	
	27.10	“

Equal to 4.66 grains solid in a pint.

The waters have long been commended by many physicians for bathing, as well for internal use, in chronic rheumatism and gout, and hepatic engorgements.

REPUTED QUALITIES—NO RELIABLE ANALYSES.

Chalybeate Waters.

Kittrel Springs, Vance County.

Lawrence's Chalybeate Springs, Murfreesborough County.

Lemon Springs, two miles from Munn's Station, Moore County.

Misheman's Springs, near Bilesville, Stanley County.

Piedmont Springs, near Danbury, Stokes County.

Seven Springs, Wayne County.

Strader's Mineral Spring, three miles from Pelham, Caswell County.

Wise's, Murfreesborough, Hertford County.

Yadkin Mineral Springs, chalybeate sulphuretted, Palmer-ville, Stanley County.

All-Healing Springs, chalybeate sulphuretted, Gaston County.

Alum Springs, chalybeate Sulphur, near Catharine Lake, Onslow County.

Cowhead Springs, four miles north of Washington, Beaufort County.

Henderson Mineral Springs, one mile from Henderson, Vance County. ✓

Jackson Springs, Moore County.

In the very heart of the pine forest and sandy soil region, at Southern Pines, Moore County, there are also several chalybeate springs and one at least sulphurous, of evident value, but no reliable analysis of these waters has yet been made.

Saline Waters.

Panacea Springs, Halifax County.

Sparkling Catawba Springs, saline and carbonated, six miles from Hickory, Catawba County.

Chatham Mineral Spring, near Pittsborough, Chatham County.

Glen Alpine, saline carbonated, ten miles south of Morganton, Burke County.

Sulphuretted Waters.

Manganum's Springs, one and one half miles north of Chapel Hill, Orange County.

Piedmont Springs, sulphuretted and chalybeate, Burke County.

Sue Spring, near Warrenton, Warren County.

Sulphur Springs, Montgomery County.

Ditto, near Petra Mills, Caldwell County.

White Sulphur Springs, at Catawba, Catawba County.

Blackwell's White Sulphur Springs, four miles from Alexandria, Buncombe County.

Cleveland Mineral Springs, sulphuretted chalybeate, near Shelby, Cleveland County.

Jones' White Sulphur and Chalybeate Springs, nine miles from Shocco.

Eupeptic Springs, fifteen miles north of Statesville, Iredell County.

Henson's White Sulphur Springs, near Island Ford, Rutherford County.

Uncharacterized Waters.

Ashley's Bromine and Arsenic, Ashe County.

Barium Springs, Iredell County.

Black Mountain Iron and Alum Springs, Black Mountain, Buncombe County.

Bell Spring, Palmerville, Stanley County.

Burke's Chalybeate Springs, near Taylorsville, Alexander County.

Chalybeate Mineral Spring, near Varina, Wake County.

Chalybeate Springs :

Near Marion, McDowell County.

Five miles south of Wadesborough, Anson County.

West of Sanford, Moore County.

One and a half miles west of Ellerbe Springs, Richmond County.

Near Laurinburg, Richmond County.

Near Shelby, Cleveland County.

Charlotte Mineral Spring, Charlotte, Mecklenburg County.

Dennison's Mineral Well, New Berne, Craven County.

De Hart's Springs, near Nantahalalah, Swain County.

Ellendale Chalybeate Springs, Ellendale, west of Taylorsville, Alexander County.

Ellerbe Springs, Richmond County.

Ewing Springs, Sulphur Springs, Montgomery County.

Haywood White Sulphur Springs, Waynesville, Haywood County.

Healing Springs, Healing Springs, Davidson County.

Jones' White Sulphur and Chalybeate Springs, ten miles

south of Ridgeway and eleven miles from Warrenton, Warren County.

Leinster or Poison Springs, five miles south of Statesville, Iredell County.

Lewis Spring, near Green Hill, Rutherford County.

Lincoln Lithia Springs, Lincolnton, Lincoln County.

Loudermilk Sulphur Spring, five miles west of Taylorsville, Alexander County.

McBride's Springs, near Shelby, Cleveland County.

Millstead's All Healing Mineral Spring, near Ellendale, Alexander County.

Min-ne-kah-ta Springs, Gaston County.

Mount Vernon Mineral Springs, Mount Vernon Springs, Chatham County.

Rocky River Springs, near Silver, Stanley County.

Shaw's Healing Springs, one half mile north of Littleton, Halifax County.

Shocco Springs, five miles from Warrenton, Warren County.

Stonewall Springs, six miles from Graham, Alamance County.

Sulphur and Chalybeate Springs, on French Broad River, Madison County.

Sulphur Springs, five and one half miles southwest of Asheville, Buncombe County.

Ten miles northwest of Asheville, Buncombe County.

Warren White Sulphur Springs, ten miles from Ridgeway, Warren County.

Mineral Springs :

At Ansonville, Anson County.

Ten miles southwest of Wadesborough, Anson County.

At Haw River, Alamance County.

At Icard Station, Burke County.

Seven miles northeast of Asheville, Buncombe County.

Near Rock Spring, Orange County.

At Greensborough, Guilford County.

The State is indeed remarkably rich in mineral springs, but unfortunately, as may be observed by the foregoing enumeration, there are comparatively few whose properties are thoroughly known and rendered available by analysis and needful local improvements.

MEDICAL EXCERPT.

By T. P. CORBALLY, A.M., M.D.

CONTAGION OF PNEUMONIA.—Dr. John H. Girdner, of New York, reports in the *Medical Record* of April 15th, 1893, two cases of croupous pneumonia, because their development was either a remarkable coincidence or strong evidence of the communicability of that disease, as follows :

“ On the morning of January 31st, 1893, Mr. L——, a newspaper man, aged thirty-one, was suddenly attacked with a severe chill. I saw him two hours later, and diagnosed acute croupous pneumonia on the left side, and as the disease advanced nearly the whole lung on that side became solidified. The heart behaved badly from the first, and the temperature reached 105° F. on the second day, and was never below 102° F. He died of œdema of the lungs and heart failure on February 5th, five days from the day of attack. On the day he was taken ill I secured for him the services of a trained nurse, Mrs. C——, aged about fifty, a well-developed, well-nourished, healthy woman. This woman, assisted by a relative of the patient, nursed him until the day before he died ; on the afternoon of that day, while on duty in the sick-room, the nurse was seized with a severe chill and was at once sent home, and took to her bed. I saw her the next morning, and found her suffering from croupous pneumonia also, nearly the whole of the left lung being involved, and her symptoms in all respects closely resembled those of the patient, Mr. L——, she had been nursing for the past four days and nights. She died on the fourth day from the date of her attack, the immediate cause being, as in the other case, œdema of the lungs and failure of the heart.

“ The disease was unusually severe in both cases from the very onset, and all treatment was futile ; the course and termination in the two cases was identical.

“ Cough and expectoration were prominent symptoms, and the nurse, who was competent and faithful, constantly lifted the patient, Mr. L——, from his pillow by placing one arm back of his neck and holding a towel for him to expectorate

in, thus inhaling the exhalations from his lungs during his fits of coughing. I mention this fact because, if, as some authorities believe, the contagion is contained in the sputa and expired air, the nurse had every opportunity to contract the disease."

PUERPERAL TETANUS was discussed in a communication to the Société de Médecine Interne de Berlin by Dr. Heyn. Tetanus is not frequent as a sequel to obstetrical operations, but it has been observed twenty times after the forcible separation of the placenta; seventeen times after tamponing the uterus; five times after the application of the forceps; three times after version, and once after perforation of the uterus and once after an operation on the perineum.

THE ETIOLOGY OF TETANUS (*Gazette Hebdomadaire*) is very much like that of septicæmia. It may even be said that septicæmia produces tetanus, in the sense that tetanus can be developed only where there is mixed infection. According to French authors, pure cultures of tetanus will not produce tetanus, unless by inoculation at the same time with other bacteria.

The bacilli of tetanus introduced alone are soon destroyed by leucocytes, according to Poger and Widal. My experiments, he says, show that puerperal tetanus is produced also under the form of a mixed septicæmic infection. In general suppuration is produced by the streptococcus; in the present case it was produced by the white staphylococcus.

As to treatment, the indication is to wash the uterus and remove the remains of the placenta, if there be any.

In every case of tetanus it is necessary to look for the bacillus of Nicolaier as soon as possible, but also for the microbe which is usually associated with it in order to produce the mixed infection.

It would be interesting to know if all the microbes that produce suppuration are also capable of preparing the system for the tetanic bacillus and of determining a mixed tetano-septic infection.

TREATMENT OF DIPHTHERIA.—Dr. W. E. Putnam, of Whiting, Ind., writes: "I wish to make known a plan of

treatment in diphtheria which I have just carried out successfully in the case of my own children, aged two, four, and five years respectively. I used a spray of peroxide of hydrogen, full strength, to which I added one part per thousand of corrosive sublimate. I reasoned that if others can give one half grain of sublimate a day internally, I can use a grain a day in my atomizer, knowing that the child will spit out nine tenths of it. I also used a little oil stove, a tin tea-kettle, and a piece of hose three feet long. In the kettle I put turpentine and lime-water, in the proportion of a tablespoonful to a pint, and then steamed the child, placing the end of the hose six or eight inches from his mouth."—*Medical Record*.

ARISTOL.—Of the many substitutes for iodoform which have been brought forward during the past few years, only two have stood the test of clinical experimentation—aristol and eucrophen. The qualities which render aristol an effective substitute for iodoform are, in brief, freedom from disagreeable odor, absence of poisonous effects, antiseptic and adhesive properties, ability to produce rapid cicatrization. Among the many authors who have published their experience with this drug may be cited Dr. John V. Shoemaker, of Philadelphia, who has employed aristol extensively in private practice and in his hospital service, and derived great benefit from it in psoriasis, leg ulcers, fistulæ, eczema, ringworm, hyperidrosis and bromidrosis; acne and rosacea. Dr. Daniel Lewis (*Medical Record*) has found a preparation of aristol in flexible collodium of great value in erysipelas in its early stages, and as a dressing of cancerous ulcers regards the pure powder or an ointment with vaseline as superior to iodoform or any of the other preparations usually employed for the purpose of checking suppuration.

BROMIDIA.—Joseph P. Ross, A.M., M.D., Professor of Clinical Medicine and Diseases of the Chest, Rush Medical College, Chicago, Ill., writes that for the past three years he has prescribed bromidia very frequently, and has never yet been disappointed in securing the results required. In cases when there is insomnia without pain, in the delirious stages of acute fevers, in delirium tremens, puerperal mania—in short,

in all those cases requiring soporifics, he finds bromidia invaluable. He considers bromidia an excellent combination.

POLY-MEDICATION.—The combination of different medicinal substances, instead of neutralizing one another, may, in certain cases, give them a more useful therapeutic action. M. E. Berger, *Gazette Hebdomadaire*, has taken the action of certain corylirims as an example of the theory in therapeutics which he wishes to sustain. He says :

“ In combining several alkaloids in one coryllium we obtain a more active remedy than in those which contain only one drug, and the combination is less dangerous. He has used equal parts of a 1 per cent solution of sulphate of atropine, 1 per cent of sulphate of duboisine, and 1 per cent of cocaine, with excellent results. This combination produces an abundance of secretion which he has never been able to obtain from any single article.

“ A mixture containing

℞ Sulph. of atropine.....	
“ “ duboisine, āā	gr. 0.3
Hydrochlorate of cocaine.....	gr. 2
Aquæ distil.....	gr. 100

is a mydriatic at least as powerful as a 1 per cent solution of atropine, without being so poisonous.

“ A combination of

℞ Sulphate of eresine.....	gr. 1
Hydrochlor. of pilocarpine.....	gr. 2
Aquæ distillat.....	gr. 100

is a very efficient myotic and very well borne.”

He also approves

℞ Hydrochlor. cocaine.....	
“ pilocarpine, āā.....	gr. 2
Aquæ distil.....	gr. 100

which presents all the beneficial effects of cocaine, with the additional advantage that the mydriasis and the disturbance of accommodation observed in the eye from the action of cocaine alone are never found.

MORTALITY AND MORBILITY STATISTICS.

By HARRY KENT BELL, M.D.

ALABAMA.—Jerome Cochrane, M.D., State Health Officer, Montgomery.

Mobile, 31,076 : T. S. Scales, M.D., Health Officer, reports for the month of March a mortality of 58, of which 35 were colored, and 18 were under five years of age. The annual death-rate per 1000 was 22.32.

Zymotic diseases caused three deaths only, and consumption, 17.

ARKANSAS.—D. W. Holman, Secretary, Little Rock.

CALIFORNIA.—J. R. Laine, M.D., Secretary, Sacramento.

Reports from 102 cities, towns, villages, and sanitary districts, aggregating a population of 810,613, show a total of 1090 deaths from all causes in March. This corresponds to a death-rate of 1.31 per 1000 for the month, or 15.72 per 1000 per annum. There were 189 deaths due to consumption, 97 to pneumonia, 45 to bronchitis, 4 to congestion of the lungs, 7 to diarrhoea and dysentery, 46 to other diseases of the stomach and bowels, 13 to diphtheria, 5 to croup, 12 to scarlatina, 1 to small-pox, 3 to whooping-cough, 13 to typhoid-fever, 7 to cerebro-spinal-fever, 3 to malarial-fever, 44 to cancer, 3 to erysipelas, 91 to diseases of the heart, 1 to alcoholism, and 505 to all other causes, among which 4 were due to *la grippe*.

CONNECTICUT.—Professor C. A. Lindsley, M.D., Secretary, New Haven, sums up the mortality reports for March as follows :

The mortality report for March has been received from 166 towns in Connecticut representing a population of 782,367.

There were 1309 deaths reported in the State during the month. This was 203 more than in February ; it was 5 more than in March, 1892, and 160 more than the average number of deaths in March for the five years preceding the present.

The number of deaths in the first quarter of this year compared with the same of each of the five years preceding was as follows: 1893, 3694; 1892, 4533; 1891, 3065; 1890, 3834; 1889, 2863; 1888, 3282.

The death-rate was 20.5 for the large towns; for the small towns, 18.9, and 20.0 for the whole State.

The deaths from zymotic diseases were 177, being 13.5 per cent of the total mortality.

The deaths from consumption numbered 147.

New Haven, 95,000: Total mortality, 194. Annual death-rate per 1000, 23.5.

Hartford, 58,600: Total mortality, 118. Annual death-rate per 1000, 22.9.

Bridgeport, 55,000: Total mortality, 79. Annual death-rate per 1000, 16.5.

Waterbury, 34,000: Total mortality, 73. Annual death-rate per 1000, 25.7.

Annual Report for the Year 1891 comprises in detail the monthly reports for the corresponding period as published, in abstract, in these pages; circulars to and correspondence with local health officers; health of towns and abstracts of reports; officers of local boards of health; special papers on "Connecticut River Water as a Source of Typhoid-fever at Hartford," by Henry E. Smith, M.D.; "Filtration of Water," by Charles J. Foote, M.D., and abstracts from a paper on "The Duty of Public Disinfection Following Acute Infectious Diseases," by Dr. N. E. Worden.

Registration for the year: Births, 18,557—birth-rate per 1000, 24.8; deaths, 14,385—death-rate, 19.2. Natural increase of population or excess of births over deaths, 4172—443 more than in the previous year. Marriages, 6486—1 to every 115 of the population. Divorces, 475—1 to every 13.65 marriages. There were 299 divorced persons who were married again.

DELAWARE.—E. B. Frazer, Secretary, Wilmington.

DISTRICT OF COLUMBIA, 250,000: C. M. Hammett, M.D., Health Officer, reports for the five weeks ending April 29th a

mortality of 578, of which number 228 were of colored people, and 168 were under five years of age. The annual death-rate was 23.1 per 1000. There were 89 deaths from zymotic diseases, and 74 from consumption.

FLORIDA.—Joseph Y. Porter, M.D., Secretary, Jacksonville.

The *Fourth Annual Report* of the State Board of Health for the year 1892 felicitates itself on the general healthfulness of the State, increased interest in preventive medicine among the people and improved quarantine methods against the introduction of epidemic diseases. Of the infectious diseases referred to—

Diphtheria, although more generally distributed than during the previous year, was in every instance imported from other States and found no resting-place, no general prevalence or anything approaching an epidemic.

Typhoid-fever is reported to have caused 133 deaths during the year, as heretofore, from localities defective in needful protective measures for the water supply. It is particularly "noted that better health prevails than formerly in those places in the State where artesian water from great depth is freely used for domestic purposes, and sewerage has taken the place of the midden and bucket system. During the year the water, plumbing and sewerage system of the larger hotels at St. Augustine and Tampa (which were last year maligned by correspondents of some of the Northern press in this respect) have been thoroughly examined by expert sanitary engineers, who report that nothing defective in the sewerage systems of these structures have been found, and the cases of fever occurring last year cannot be attributed to defects therein."

The condition of the streets, in Jacksonville particularly, has been disgracefully promotive of epidemic diseases, and "at the date of this writing [of the report] the condition of Bay Street, Jacksonville, remains a menace to the public health."

Consumption, according to the tabulated reports for the year, caused 303 deaths. An attempt has been made to designate the deaths of residents and non-residents from this disease

separately. As a partial result of this movement 28 counties out of 45 report 86 native Floridians, 130 from other States of the Union, 34 from Cuba, 26 from other foreign countries, and 36 unknown; 56 of the decedents were in the State less than two years, and only 36 are reported as life residents. This tabulation for the present, on account of the short period commenced, is necessarily imperfect, as it does not embrace reports from all the counties in the State. It is given merely as a pointer; but it is believed that when this discrimination in vital statistics is fully observed the State will show a less percentage of death-rate from this cause among her native population of any State in the Union.

Small-pox, but 1 case reported in the State during the year. Vaccination has been urged, school officers communicated with, and continuous effort made to induce that attention to the subject which its importance demands, with increasing benefit.

Yellow-fever has been at every port, but effectually prevented entrance.

The deaths from all causes were 3241 in a reported population of 297,071. At the same ratio, estimating the death-rate of counties not reporting, the total number of deaths from all causes during the year would probably number about 4324. The death-rate per 1000 of population for the year 1892, from reports received, has been 13.86, June being the largest (15.22) and December the smallest (11.03) death-rate per 1000 of population.

Vital statistics are again urged, as heretofore. "As stated in last year's report, 'Florida hopes to invite immigration, and in order to draw a desirable class from outside the State, clear, reliable, and intelligent statistical data is required, and when obtained will be a sure guide to attract the best class of immigrants. This class we invite by our genial climate and by the varied resources of industry and wealth now opening up; but if we would hold out inducements to the dweller of the extreme North, or to the inhabitants of the Middle States, to adopt Florida as a home, it is but just that the fullest evidence of its highest degree of healthfulness is furnished, as well as other information dealing with sanitary matters.' But, as we also stated in that report, 'Better results cannot be expected unless the recommendations made in the past

two annual reports is approved of and adopted. When the State Board of Health relieves the county boards of health of the duty of collecting vital statistical data, and appoints and pays intelligent inspectors in each county, men appointed for special fitness and earnest interest in this work, then, and then only, can reliable and regular reports be had.' "

Ten more counties were added to those making monthly reports than for the previous year, but the monthly average was only 27 out of 39 in the State.

Cholera and quarantine—national and State—are reviewed, and a brief report made of the proceedings of the conference of health officers, at Washington, in March, at which the following resolution, offered on a formal motion by the State Health Officer of Florida, was adopted :

“ Communication without detention at ports of arrival may be had with Havana at all seasons of the year, provided that the ships be of iron, of special construction and under special requirements hereinafter provided for by the United States Marine Hospital Surgeon-General, and that the vessels comply with the regulations as prescribed by the United States Quarantine laws requiring disinfection abroad, and that the baggage and all articles capable of conveying infection be disinfected according to United States Quarantine rules at port of arrival. *Provided*, further, that no bedding nor household effects be allowed at any time, and that none but immune persons be allowed as passengers or crew from May 1st to November 1st.”

As a whole, the report is creditable to the sanitary service of the State and to the State Health Officer in particular, considering the extraordinary difficulties involved by commerce with Cuba, against which the officers have had to contend, and the Board eminently deserves the generous support of the legislative authorities.

ILLINOIS.—F. W. Reilly, Secretary, Springfield.

Chicago, 1,449,984 : J. D. Ware, M.D., Commissioner, reports 2415 deaths during March, representing an annual death-rate of 19.95 per 1000.

The mortality under the age of five years was 1109. The deaths from zymotic diseases numbered 528, and from consumption, 213.

INDIANA.—C. N. Metcalf, M.D., Secretary, Indianapolis.

IOWA.—J. F. Kennedy, M.D., Secretary, Des Moines, reports in the *Monthly Bulletin* for the month of March :

Council Bluffs, 35,000 : Total deaths, 15. Annual death-rate, 5.14 per 1000.

Davenport, 34,500 : Total deaths, 33. Annual death-rate, 11.0 per 1000.

Des Moines, 70,000 : Total deaths, 57. Annual death-rate, 9.7 per 1000.

Dubuque, 40,000 : Total deaths, 34. Annual death-rate, 10.2 per 1000.

KANSAS.—M. O'Brien, M.D., Secretary, Topeka.

KENTUCKY.—J. N. McCormack, M.D., Secretary, Bowling Green.

LOUISIANA.—L. F. Salomon, M.D., Secretary, New Orleans.

New Orleans, 254,000—184,500 white, 69,500 colored. There were reported for four weeks ending April 22d, 505 deaths, of which number 186 were among the colored people, and 150 of children under five years of age. There were 91 deaths due to zymotic diseases, and 77 to consumption. The annual death-rate was 25.83 per 1000.

Dr. F. W. Parham, Chief Sanitary Inspector, reports that the total mortality for the year 1892 was 7499—white, 4747 ; colored, 2752. The death-rates per 1000 of population per annum were, white, 25.72 ; colored, 39.59 ; total, 29.52.

The following items of mortality are mentioned as of interest :

1. The deaths from pneumonia alone were 481, from bronchitis, 201, and from consumption, 918, or a total of 1600 deaths from these three pulmonary diseases, or 21.3 per cent of the total mortality. A consideration of this fact with the general mortality shows that 1892 had the largest mortality of its five-year period, and that the percentage of deaths from pulmonary diseases was larger than that for any year of this period, with the exception, perhaps, of the year 1889, when the pulmonary deaths were 21.2 per cent of the total.

2. The deaths from epidemic influenza or *la grippe* were, in 1892, 133, of which 129 occurred in the first quarter. The deaths in 1889, none reported ; in 1890, 47, 32 of them occurring in December ; in 1891, 43, 37 occurring in January. These statistics would seem to show that the prevailing epidemic had a decided influence in 1892 in increasing the mortality, especially so when we reflect that influenza occurs often as an intercurrent disease, and may not in such cases appear at all in our mortality tables.

Contagious Diseases.—I. *Diphtheria*.—There were reported 120 cases, with 53 deaths. The statistics for the previous four years are added for comparison : 1888, 832 cases, 300 deaths ; 1889, 344 cases, 135 deaths ; 1890, 181 cases, 84 deaths ; 1891, 129 cases, 56 deaths. The mortality seems very large, possibly for the reason that fatal cases are mostly all reported, while mild or doubtful cases escape.

Although this exhibit shows a decrease year by year of diphtheria in our midst, I find it difficult to explain the cause adequately. I cannot think physicians are more careless now than formerly ; indeed, I believe them to be more careful. The statistics will have to speak for themselves.

II. *Scarlatina*.—Thirty-three cases of scarlet-fever were reported, with no death. Fifty-five cases were reported in 1890, and 93 in 1891.

III. *Small-pox*.—No case of small-pox or varioloid occurred in the year.

MAINE.—A. G. Young, M.D., Secretary, Augusta.

MARYLAND.—James A. Steuart, M.D., Secretary, Baltimore.

Baltimore, 455,427: The report of the Commissioner of Health for the year 1892 shows a total mortality of 10,582, an increase of 509 over the previous year, representing a death-rate of 23.25 per 1000. The deaths under five years of age numbered 4443.

Zymotic diseases caused 2281 deaths, representing 21.55 per cent of the total mortality. Consumption caused 1127 deaths.

MASSACHUSETTS.—S. W. Abbott, M.D., Secretary, Boston.
Boston, 469,647 : S. H. Durgin, M.D., Chairman.

There were 1034 deaths reported in March, of which number 309 were under five years of age. The annual death-rate per 1000 was 26.41. There were 116 deaths from zymotic diseases, and 126 from consumption.

MICHIGAN.—Henry B. Baker, M.D., Secretary, Lansing.

For the month of April, 1893, compared with the preceding month, the reports indicate that intermittent-fever increased in area of prevalence.

For the month of April, 1893, compared with the preceding month, the prevailing direction of the wind was southwest (instead of southeast), the velocity was slightly greater, the temperature was higher, the rainfall at Lansing was 1.52 inches more, the absolute humidity was more, the relative humidity was considerably less, the day and the night ozone were more, and the height of ground above the water in the well at Lansing was six inches less.

Compared with the average for the month of April in the seven years 1886-92, remittent-fever, intermittent-fever, erysipelas, and pleuritis were less prevalent in April, 1893.

For the month of April, 1893, compared with the average for corresponding months in the seven years 1886-92, the prevailing direction of the wind was the same (southwest), the velocity was greater, the temperature was lower, the rainfall at Lansing was 3.36 inches more, the absolute humidity was slightly less, the relative humidity was slightly more, the day ozone was less, the night ozone was slightly more, and the height of ground above the water in the well at Lansing was five inches more.

Including reports by regular observers and others, scarlet-fever was reported present in Michigan in the month of April, 1893, at eighty-eight places; measles at fifty-nine places; diphtheria, fifty, and typhoid-fever at twenty-three places.

Reports from all sources show scarlet-fever reported at twenty-two places less; measles at four places less; diphtheria at eighteen places less, and typhoid-fever at eight places less in the month of April, 1893, than in the preceding month.

MINNESOTA.—C. N. Hewitt, M.D., Secretary, Red Wing.

St. Paul, 155,000 : H. F. Hoyt, M.D., Commissioner, reports for the year 1892 a total mortality of 1752, of which 827 were under five years of age. The death-rate per 1000 was 11.68. The number of deaths from diphtheria and croup was 149 ; consumption, 127 ; pneumonia, 163 ; meningitis, 79 ; cholera infantum, 71 ; typhoid-fever, 47 ; scarlatina, 20. The mortality during the month of March, 1893, was 132, representing an annual death-rate of 10.22. Deaths under five years of age numbered 47.

Zymotic diseases caused 18 deaths, and consumption, 13.

Minneapolis, 209,000 : E. S. Kelley, M.D., Commissioner, reports for the year 1892 a total mortality of 2258. Zymotic diseases caused 448 deaths, and consumption, 233. Deaths under five years of age numbered 976. The death-rate was 10.80 per 1000.

During the month of March, 1893, there were 160 deaths, representing an annual death-rate of 7.65 per 1000. Zymotic diseases caused 18 deaths, and consumption, 16. There were 60 deaths under five years of age.

MISSISSIPPI.—Wirt Johnson, M.D., Secretary, Jackson.

MISSOURI.—R. C. Atkinson, M.D., Secretary, St. Louis.

NEBRASKA.—F. D. Haldeman, M.D., Secretary, Ord.

NEW HAMPSHIRE.—Irving A. Watson, M.D., Secretary, Concord.

NEW JERSEY.—Ezra M. Hunt, M.D., Secretary, Trenton.

Hudson County, 301,298 : C. J. Rooney, Clerk, reports for March, 586 deaths, of which 218 were under five years of age. Annual death-rate, 27.7 per 1000.

From zymotic diseases there were 88 deaths, and from consumption, 61.

Paterson, 90,251 : J. L. Leal, M.D., reports for March 180 deaths, of which number 70 were under five years of age. The annual death-rate was 23.9. There were 22 deaths from zymotic diseases, and 25 from consumption.

NEW YORK.—Lewis Balch, M.D., Secretary, Albany, reports in the *Monthly Bulletin* as follows :

There were 12,000 deaths reported in March, or 387 daily, which is 53 more than in February and 30 more than the daily average for March, 1892. There appears to have been not less than 2000 deaths more than the normal for the month. The rate of mortality is increased in all parts of the State, and in the rural as well as in the urban portions. Much the largest increase is, however, in the maritime district, where, allowing for the greater length of the month, there were 1500 more deaths than in February ; of this increase 1200 is credited to New York City, 6756 of the 12,000 deaths occurring in New York and Brooklyn. There is a relative diminution in the zymotic mortality, from 12.45 per cent of the total mortality in February to 12.12, and there is little change from the recent prevalence of the more important of the diseases of this class ; cerebro-spinal fever, whooping-cough and diarrhœa have increased their mortality. The number of deaths from acute respiratory diseases has risen from 1900 in February to almost 3000, which has been exceeded only in months in which grip epidemics were at their height. There were 561 more deaths from this cause than in March, 1892, when an epidemic, then waning, caused 1500 deaths. Consumption also had a very large death-rate, the number being the same as that of January, 1892. This increase in mortality from diseases of the respiratory organs appears in all the sanitary districts, but is much the most marked in the maritime. Half of the surplus mortality for the month above the normal is due to lung diseases and the rest is distributed through the other local diseases, those of the nervous, digestive, urinary and circulatory organs. The increase is due to epidemic influenza, the mortality from which was probably about 1800. A single case of typhus-fever occurred during the month in Peekskill, originating in New York ; there was also one death from it in Long Island City. There were 7 deaths from scarlet-fever in Massenna, St. Lawrence county ; in Jamestown there were 16 deaths from diphtheria.

New York, 1,860,803 : Total deaths, 4776—1563 under five years. Death-rate, 30.18. Zymotic diseases per 1000 deaths from all causes, 132.54. Deaths from consumption, 567.

There were 35 cases of typhus-fever in the Riverside Hospital March 4th, since which time, to April 1st, there have been admitted 35 cases. Of this number 13 have died and 42 have been discharged.

Brooklyn, 978,394: Total deaths, 1980—689 under five years. Death-rate, 23.82. Zymotic diseases per 1000 deaths from all causes, 114.14. Deaths from consumption, 183.

Syracuse, 91,944: Total deaths, 133—40 under five years. Death-rate, 17.35. Zymotic diseases per 1000 deaths from all causes, 142.85. From consumption, 17.

Albany, 98,000: Total deaths, 194—63 under five years. Death-rate, 23.66. Zymotic diseases per 1000 deaths from all causes, 149.21. From consumption, 17.

Buffalo, 290,000: Total deaths, 380—129 under five years. Death-rate, 15.71. Zymotic diseases per 1000 deaths from all causes, 126.33. From consumption, 48.

Rochester, 144,834: Total deaths, 189—49 under five years. Death-rate, 15.22. Zymotic diseases per 1000 deaths from all causes, 142.10. From consumption, 28.

NORTH CAROLINA.—Richard H. Lewis, M.D., Secretary, Raleigh.

The Bulletin states that during the month of March there were 150 deaths in the State in an aggregate population of 117,971 (48,782 colored), 75 white and 75 colored, representing an annual death-rate of 13.0 and 18.5 respectively, and 15.2 for the State.

Diphtheria caused 1 death; pneumonia, 22; consumption, 26; heart diseases, 15; and neurotic diseases, 5.

NORTH DAKOTA.—F. H. DeVaux, M.D., Superintendent, Valley City.

OHIO.—C. O. Probst, M.D., Secretary, Columbus.

From the *Monthly Sanitary Record* we get the report of eighteen cities aggregating a population of 1,071,363, showing a mortality of 1517 in the month of February, representing an annual death-rate of 16.93 in each 1000.

Of this number 503 were under the age of five years. Zymotic diseases caused 212 deaths, and consumption, 164.

OKLAHOMA TERRITORY.—J. O. Overton, M.D., Secretary, Kingfisher.

PENNSYLVANIA.—Benjamin Lee, M.D., Secretary, Philadelphia.

Philadelphia, 1,115,562 : M. Veale, Health Officer, reports :

In the five weeks ending April 29th, 1893, there were 2406 deaths, of which number 1151 were under five years of age. Annual death-rate, 25.8 per 1000. Deaths from consumption numbered 300.

Pittsburg, 255,000 : J. Guy McCandless, M.D., Registrar, reports : During the five weeks ending April 29th, 1893, there were 486 deaths, of which 184 were under five years of age. Annual death-rate, 18.90 per 1000. Zymotic diseases caused 93 deaths, and consumption, 49.

RHODE ISLAND.—C. H. Fisher, M.D., Secretary, Providence, reports for the month of March 530 deaths in a population aggregating 318,494. Annual death-rate, 18.96 per 1000. There were 47 deaths from zymotic diseases, and 63 from consumption.

SOUTH CAROLINA.—H. D. Frazer, M.D., Secretary, Charleston.

SOUTH DAKOTA.—C. B. Alford, M.D., President, Huron.

TENNESSEE.—J. Berrien Lindsley, M.D., Secretary, Nashville, reports :

Proceedings of the Quarterly Meeting of the State Board, April 11th and 12th, 1893, at which Dr. Plunkett, Chairman of Committee on Legislation, reported on "An Act to Prevent the Spread of Communicable Diseases and to Fix the Penalty for the Violation of this Act, approved April 10th, 1893." Every practitioner of medicine, the head of every hotel, boarding-house or other household in Tennessee, together with the respective county and municipal board of health, also the several boards of education and the county superintendents of public instruction are urged by the State Board of Health to co-operate in the execution of this important law.

In a circular letter addressed to every physician in the State, Dr. Plunkett, President of the Board, well says, in regard to one of the most important provisions of the Act, that,

“ In being able to deal promptly with the ‘ first case ’ the public are given the greatest protection, as thereby much unnecessary sickness can be prevented, many lives saved, and epidemics avoided ; hence the great importance of prompt notification being given by you to the local health authorities county or town, as the case may be) of ‘ every case or suspected case ’ of communicable disease coming within your knowledge. This the State Board of Health are encouraged to believe you will cheerfully and cordially do.”

The principal diseases, named in the order of their greater prevalence, in the State for the month of March were : Pneumonia, *la grippe*, consumption, malarial-fever, whooping-cough, bronchitis, typhoid-fever, scarlet-fever, measles, mumps, rheumatism, diphtheria, and cerebro-spinal meningitis.

La grippe was reported in the counties of Anderson, Campbell, Decatur, Giles, Hancock, Houston, Madison, Maury, McNairy, Montgomery, Robertson, Rutherford, Stewart and Weakley ; consumption in Davidson, Decatur, Grundy, Hamilton, Houston, Knox, Maury, Montgomery, Moore, Rutherford and Shelby ; whooping-cough in Davidson, Humphreys, Madison, Maury, McNairy, Moore and Williamson ; typhoid-fever in Giles, Humphreys, Knox, McNairy, Shelby and Stewart ; scarlet-fever in Davidson, Madison, Robertson and Shelby ; measles in Fayette, Henry and Weakley ; mumps in Hamilton, Madison and McNairy ; cerebro-spinal meningitis in Giles and Hancock ; and chicken-pox in Hamilton.

WASHINGTON.—G. S. Armstrong, M.D., Secretary, Olympia.

WEST VIRGINIA.—N. D. Baker, Secretary, Martinsburg.

WISCONSIN.—J. T. Reeve, M.D., Appleton.


PROVINCIAL BOARD OF HEALTH OF ONTARIO.—Peter H. Bryce, M.D., Secretary, Toronto.

PROVINCE OF QUEBEC.—Elzear Pelletier, M.D., Secretary, Montreal.

BUENOS AYRES, 554,713 : Albert B. Martinez, Director-General of Municipal Statistics.

EDITOR'S TABLE.

SANITARIAN, JUNE NUMBER, 1893.

 ALL correspondence and exchanges and all publications for review should be addressed to the Editor, DR. A. N. BELL, Brooklyn, N. Y.

STABLES AS AT PRESENT CONDUCTED IN NEW YORK AND
BROOKLYN DANGEROUS TO HEALTH.

BROOKLYN, May 12, 1893.

DR. A. N. BELL, *Editor of THE SANITARIAN* :

Your editorial of May number contains timely and cogent words on the subject of stable filth. The dangers from this source in this city are extensive and imminent. These abodes of the pestilential microbes exist in great numbers in almost every street. Stable filth is the field of pure culture for that dreadful and fatal disease, *diphtheria*. This is so true that histories of the movements of troops show that this disease is more prevalent and fatal among cavalymen than among foot soldiers. In more than one instance has it been forced upon my attention that diphtheria has especially affected those who dwell in stables. I have known a family of three children perish one after the other from diphtheria because the father lived with them in rooms over a stable. The stable question is one that requires our most urgent and intelligent attention at the present time.

Yours sincerely,

J. S. WIGHT, M.D.

DR. ROGER S. TRACY, Chief of the Bureau of Contagious Diseases, recently submitted a report to the Health Department of New York, showing the mortality among persons living in houses within fifty feet of stables as compared with that of the rest of the city. The report was based upon his investigations, lasting eight months, during which time 3596 stables and 10,266 houses within fifty feet thereof were inspected.

The report shows that the death-rate was considerably higher in houses located near stables than in those further removed. The death-rate among children under five years of

age whose homes were near stables was particularly high, being 81 in every 1000.

The report concludes :

“ The diseases which produce the greatest mortality in the city—diarrhœal diseases, phthisis, and acute respiratory diseases—seem to be entirely more prevalent or more fatal near stables than elsewhere, and the general indications furnished by the stables are decidedly against stables as an unsanitary element in an environment.”

DR. JOHN T. NAGLE, Register of Vital Statistics, indorsed DR. TRACY'S report, saying that it would “ tend to confirm the observations of medical men made from time to time in the sanitary journals.”

That it is in the power of the health authorities to prevent the danger of stables to health cannot be doubted by any one who will take the pains to inform himself on the subject. As frequently pointed out in these pages, the danger consists primarily, for the most part, in the construction of stables with basements and areas around the walls used for the storage of manure, with open gratings over, between the walls and the pavement, permitting the escape of foul odors and mephitic gases ; vaults, usually under the pavement, for manure storage ; porous and commonly undrained floors ; too long keeping and piling up manure *in the stables*, as well as in the areas and vaults, *until it putrefies*, and the *most intolerable nuisance of all—the process of delivering the manure from the areas, vaults and stables, across the pavements, to carts in the streets*, offending the whole neighborhood ! Why, in the exercise of common sense, should not the carts be compelled to load up *in the stables instead of the streets* ? Is it because the stirring up the *too-long-retained* manure in the stables and vaults for such a delivery would be stifling to the stable men and horses, and the health authorities' greater concern for the comfort and health of the stable men and horses than for the people round about ? Have not the health authorities the power to prevent such accumulations, to prohibit storing manure in areas, vaults, and piles, promotive of its putrefaction—*authority to require* more frequent removal, and that the carts be loaded up and covered *in the stables, instead of in the streets* ?

DELAWARE QUARANTINE STATION (?).

In accordance with a joint resolution of the Legislature in 1891, the Governor of Pennsylvania appointed four persons who should, with himself, constitute a special commission "to communicate with the proper authorities of the Federal Government, or of any State, with a view of obtaining such concessions as will enable the Board of Health of the city of Philadelphia, or the commonwealth of Pennsylvania, to secure a suitable site for a quarantine station at some point remote from the centre of population on the Delaware River." Under this resolution the Governor named Henry Leffmann, Benjamin Lee and John Huggard, of Philadelphia, and Andrew Osborne, of Boothwyn, Delaware County.

The Commission organized at Harrisburg, on July 1st, 1891, by electing Robert E. Pattison, President, and Henry Leffmann, Secretary. George J. Brennan was appointed Corresponding Secretary.

As the result of the inquiry we have before us *two* reports—the commissioners were unable to agree. A majority report, signed by Drs. Leffmann and Lee, and Mr. Osborne recommends Bombay Hook Island. Referring to the past, they report that :

"When the station located at the mouth of the Schuylkill was found objectionable on account of its contiguity to Philadelphia, it was entirely satisfactory to remove it a few miles farther down to the then deserted region of Big Tinicum Island. At that time the greater portion of the vessels arriving could pass by way of the channel between the Lazaretto and Little Tinicum Island—a long, narrow strip of land lying about a mile from the shore line. The location now occupied by the city of Chester, with its dense population and extensive industrial interests, was so insignificant in nature that the Lazaretto could not be considered as interfering with it. The movements of commerce, inherently slow, were not seriously impaired by even imperfect means of reaching vessels, or by the long detentions which were customary in those years, and from which, indeed, the term quarantine is derived.

"Since the establishment of the present location a more complete transformation of commercial business and sanitary

methods has taken place than had occurred since the beginning of the historical period of the human race. . . . Steam has brought about a system of rapid and certain movements making the arrival of vessels matters of almost hourly exactness. . . . These changes have affected, of course, the commercial interests of every port in the world, but special conditions of development apply to the quarantine service of the Delaware River and Bay, which need serious consideration, and which have, indeed, led to the appointment of this commission. Within the last fifty years large manufacturing interests, including ship-building on an extensive scale, have given rise to a concentration of population along the Delaware River front, encroaching upon the present Lazaretto boundaries, both from Chester upward and from the mainland surrounding Big Tinicum Island. . . . In considering, therefore, the object of the commission, it seems clearly indicated in the resolution constituting the body that a removal of the Lazaretto from the present location, or its neighborhood, was intended. Certainly to obtain 'such concessions as will enable the Board of Health of the city of Philadelphia or the commonwealth of Pennsylvania, to secure a suitable site for a quarantine station at some point remote from the centre of population on the Delaware River,' involves a change of location, for the present site is not only inconvenient by reason of its distance from the channel, but, instead of being located 'remote from the centres of population,' is but a short distance from one of the densest and most actively increasing districts within the State. The commission, therefore, in making its inquiries as to locations suitable for a new station, has not thought it necessary to discuss the islands within the boundaries of Pennsylvania. These are two in number, Little Tinicum Island, opposite the present station, and the area of almost submerged land known as Chester Islands.

"Bombay Island is located in Duck Creek township, Kent County, Delaware. It is a narrow strip of land about seven miles long and varying in width from a mile to much less, separated from the mainland by a narrow stream of water and considerable marsh. It includes in its entirety, the commission is informed, about 6000 acres, of which about one third, say 2000 acres, is firm ground suitable for all building pur-

poses. Since the firmer portion of the island lies toward the bay side, it is obviously in a position for utilization. A considerable portion of the island is wooded ; another considerable portion is arable land. The creek separating the island from the mainland, although narrow, is sufficient, with the somewhat marshy shores, to prevent communication with the mainland except over causeways, one of which now exists for the purpose of carrying a railroad on the island. The mainland adjacent to Bombay Hook is very sparsely settled, the nearest collection of population of any importance, Smyrna, being eight miles distant from the centre of the island. So far as the danger of conveying infection is considered, therefore, there does not appear to be the slightest reason for alarm. All the waters surrounding Bombay Hook are salt, a fact which renders the marshy ground less objectionable, and is an additional advantage in use of water for washing out of bilges, holds, and steerages of ships. The ship channel is wide along the entire length of the island, affording room for the anchorage of the greatest number of vessels that are ever likely to be detained in quarantine. Pure water could be obtained on the island, and the farming area would be quite sufficient to constitute a support for even a considerable number of persons for a month or more, thus making it possible to secure, if emergency should require it, absolute isolation. The extensive territory available, including the woodland, would place detained passengers or crews under the most favorable sanitary conditions, avoiding all perils of overcrowding, while securing the advantages of fresh, wholesome food, pure water for drinking purposes, and abundance of salt water for lavatory flushing, and other general sanitary uses. No difficulty would be found in disposing of refuse without creating a nuisance or any sanitary dangers. . . . Moreover, since experience has shown that practically all the vessels that stop at the Delaware Breakwater station for quarantine inspection are bound for ports on the Delaware River, there would appear to be a feasibility of combining at Bombay Hook, by interstate and international agreement, the entire quarantine service for Pennsylvania, New Jersey, and Delaware. Should, for instance, a portion of the improvement at this station be carried out by the Government of the United States, assisted by

States bordering on the Delaware River and Bay, a very complete equipment could be furnished. Indeed, the only expenditure of any considerable magnitude would be the construction of the deep-water wharf. The island needs no reclaiming; the buildings for quarantine purposes should be comparatively inexpensive. Hospital buildings such as are now located at the Philadelphia Lazaretto are entirely unsatisfactory."

Notwithstanding the objections to the islands within the boundaries of the State, so clearly pointed out in the foregoing by the majority of the committee, Mr. Huggard disagrees, and in a separate report urges three places, either one of which he deems preferable to Bombay Hook.

"These are the present Lazaretto, embracing Little Tinicum; the second is Reedy Island; the third, the Pea Patch, where Fort Delaware is situated. All my information relative to the latter leads me to conclude that the Federal Government will not permit this plant to be taken by the adjacent States for any purposes."

Of the rest, the objections stated in the majority report appear to be abundantly sufficient. It is to be hoped that no insurmountable obstacles will obtain against a co-operative effort of the three States interested to establish the needful plant on Bombay Hook.

THE NEW SURGEON-GENERAL OF THE NAVY, J. RUFUS TRYON, M.D., appointed May 10th, 1893, to succeed Surgeon-General J. Mills Browne, M.D., retired.

Dr. Tryon first entered the navy as Acting Assistant Surgeon from New York, March 19th, 1863, and was commissioned such September 24th following. He has served successively through the grades of Assistant Surgeon, Passed Assistant Surgeon, and Surgeon, and three years and a half as Medical Inspector. By this appointment he has been promoted over eleven seniors of his own grade, of whom there are fifteen—Dr. Tryon being number 12—and the whole grade of medical directors on the active list, of whom there are fifteen.

Yet, that he is abundantly qualified for the discharge of the responsible duties of the office of Surgeon-General, and that

he will demonstrate what a young but eminently capable and vigorous officer can do in the way of elevating the status of the medical corps of the navy, by enlarging and stimulating the service in its own behalf, and by making the best use of its superior opportunities for the promotion of professional advancement, no one doubts who knows him.

THE SANITARIAN congratulates Dr. Tryon on his promotion, and will take pleasure in marking the steps of progress it expects under his administration.

DR. JAMES A. STEUART, whilom Health Commissioner of Baltimore, has been appointed Secretary and Executive Officer of the State Board of Health of Maryland, in place of Dr. Chancellor, recently appointed U. S. Consul at Havre. Sanitarians generally will doubtless recognize the exceptional fitness of Dr. Steuart's appointment to this office as a tribute to his eminent qualifications for the exercise of the duties which it imposes.

THE CLERGY OF PHILADELPHIA have organized to aid in securing a better condition for the city. Pure water, thorough street cleaning and the proper removal of garbage are among the objects sought. Rev. Dr. McConnell said that nothing was to be expected from Councils controlled by mercenary corporations. The Mayor was the one man responsible for the state of affairs. He suggested that 150 of the clergy wait on the Mayor and urge upon him the importance of exercising his full powers.

It is a hopeful sign of the times when the clergy are found advocating practical hygiene, and we hope that members of our own profession will be as diligent in arousing the community to a sense of its danger and its duties.

WHY GLADSTONE LAY AWAKE.—John Addington Symonds, the English art critic, in his "Recollections of Tennyson" in the May *Century*, tells of a conversation, in 1865, between the Laureate and Gladstone, in which the latter said he always slept well. He had only twice been kept awake by the exertion of a great speech in the House. On both occasions the recollection that he had made a misquotation haunted him.

LITERARY NOTICES AND NOTES.

A STANDARD DICTIONARY OF THE ENGLISH LANGUAGE, in process of publication by Messrs. Funk & Wagnalls Co., New York, according to the Prospectus, engravings and advance sheets before us, promises many improvements over any other work of the kind heretofore published.

The editors (nearly two hundred) engaged upon the various departments of the Dictionary have been selected from the front rank of English and American scholars ; each is representative of all that is latest and most approved in his own field of exploration and research, and each is an accepted authority in his sphere. From beginning to end, the Standard Dictionary will be the work of men thoroughly equipped in the schools of science, literature, and art, and of experts in all handicrafts and trades. It seems neither extravagant nor invidious to claim that no more capable and vigorous body of workers, in touch with the spirit and movement of the times, has ever been called to the making of a dictionary in any language. As has been well said, " This Dictionary will be, in fact, the joint product of many minds, reflecting the whole scholarship of the present age."

The following are a few of the representative editors : F. A. March, LL.D., L.H.D. ; Hon. E. J. Phelps, LL.D. ; Simon Newcomb, Ph.D., LL.D. ; Profesors Frank H. Bigelow, M.A. ; Charles S. Dolley, M.D. ; R. O. Doremus, M.D., LL.D. ; W. G. Brown, Ph.D. ; Thomas H. Huxley, LL.D., F.R.S., etc. ; Daniel G. Brinton, M.A., M.D., LL.D. There are more than a hundred others of similar eminence.

Some of the particularly advantageous features made manifest by the portion of the work before us are the thoroughly comprehensive, practical, and facile arrangement of the living words in the English language, without being encumbered by an inordinate mixture of obsolete and slang words, scientific and technical terms. " There are," it is remarked introductorily, " enough obsolete words, with their variant forms, to fill a large quarto volume. Hundreds have been handed

down from one generation of dictionaries to the next," of no possible use, which it is evidently not the purpose of this work to perpetuate. Besides, "there are special dictionaries and glossaries of obsolete and dialectic words that are within the easy reach of students. Yet for various reasons a number of obsolete words have been admitted; some to indicate the progress toward simplicity which the language is making, as *abbaye* for *abbey*; they serve as a prophecy of future usage. Then there are many obsolete and archaic words to be found in old books which are extensively read, as Chaucer, Spenser, Milton, Shakespeare. Such words, of course, are given.

"Foreign words are given only if they are used to a considerable extent in English conversation or in English literature. Slang words of one age are often accepted literary words of a succeeding age. / It is the business of a dictionary to furnish the keys that will unlock phrases and sentences. A dictionary is to record usage; this is its primary work. Nine tenths of slang is the expression of varying whims, and need not be recorded. It requires careful judgment to select that other tenth, embracing such words as *bonanza*, *boodle*, and *boycott*.

"A secondary but important work of a dictionary is to place the proper stamp on a word. Is it a good or a bad word? Is it foreign or dialectic, obsolete or archaic? Is it colloquial, slang, or low? This is part of the service the Standard Dictionary seeks to render to those who consult its pages.

"To save space, the etymologies of rare, archaic, obsolete, foreign, and dialectic words are omitted." Yet "by actual count" the Standard will contain more than five times as many words as Stormonth, nearly three times as many as Worcester, more than twice as many as Webster's International, and fifty-five thousand more than the Century.

"The full number of words and terms in these dictionaries for the entire alphabet is as follows: *Stormonth*, 50,000; *Worcester*, 105,000; *Webster* (International), 125,000; *Century* (six volumes, complete), 225,000; *Standard*, 280,000."

Other particularly advantageous features, besides the elimination of words facilitating reference, are "*Order of usage*"—that is, the first aspect of a word is its spelling; second, pronunciation; third, definition—etymology last.

“Between two ways of spelling the same word, both by recognized authorities, preference is given to the simpler form. In all words fully Anglicized *e* is preferred to the diphthongs *æ*, *æ*, as *fe*[æ]*tus*, *home*[æ]*opathy*, *e*[æ]*sthetics*, etc. The use of the dieresis is wholly discarded. Changes have been made in the spelling of chemical words in compliance with a special request from the American Association for the Advancement of Science. The American Philological Association, as well as the American Spelling Reform Association, recommends the immediate application of the principles of the spelling reform to about 3500 words. To each of these words is given in the Dictionary a vocabulary place. The definitions are given under the usual, or older, forms of the words.”

Pronunciation is given in the scientific alphabet, as recommended by the American Philological Association. If a word is pronounced variously, the first pronunciation given is that preferred by this work, and this is followed by the pronunciations preferred by other dictionaries.

Quotations used to verify or illustrate the meaning of words are located, book and page given.

The general plan of the work, the excellence of the scholarship in its composition, and the mechanical skill displayed in its production all attest its eminent superiority over all English dictionaries ever before published.

ABROAD AND AT HOME—PRACTICAL HINTS FOR TOURISTS. By MORRIS PHILLIPS, editor of the *Home Journal*. New York: Brentano's.

Only one year ago, in our May number, 1892, we had occasion to say: “This is a thoroughly readable guide-book, from which the tourist may learn all about the most accessible and best routes of travel, . . . the most enjoyable places, the best hotels, boarding-houses, pensions, and restaurants, and the most interesting places and things to be seen round about the chief capitals, sanitary and other resorts; how to travel and what it costs, and how to economize—in short, how best to enjoy travel and to derive the most benefit from it, by one who not only knows how himself, but knows how to tell others.” Since that time it has passed through three large editions! Not for the merit of the notice by

any means, but of the BOOK. And to this *fourth edition* is added just what everybody wants to know—all about Chicago and its hotels, how best to reach it, and how to get along with the least possible embarrassment on getting there.

Moreover, the chapters on London and Paris have been elaborated, and new articles added descriptive of some of our most attractive home resorts.

THE WIFE AND MOTHER : A Medical Guide to the Care of her Health and the Management of her Children. By ALBERT WESTLAND, M.A., M.D., C.M. 12mo, pp. 300, price \$2. Philadelphia : P. Blakiston, Son & Co.

An excellent book, thoroughly adapted to the needs of every woman who would understand the duties of married life ; how to meet the conditions common to maternity ; motherhood ; the relations of the mother to the infant, its development, care, nutrition, and training ; the minor troubles and diseases of infants and children, how to meet them and when to send for the doctor. Also the later married life, the menopause, its discomforts and how to meet them. In short, how to be happy—not merely to live, but to have good health.

HYGIENIC MEASURES IN RELATION TO INFECTIOUS DISEASES, by GEORGE H. F. NUTTALL, M.D., Ph.D., G. P. Putnam's Sons, New York and London, publishers, is an excellent duodecimo manual of one hundred and twenty-five pages, containing the gist of a large amount of material of practical utility to all health officers.

NEW YORK STATE REFORMATORY SEVENTH YEAR-BOOK, Elmira, N. Y., containing Report of the Board of Managers and Report of the General Superintendent for the fiscal year ending September 30th, 1892, is alike remarkable as an illustration of skill in the art of book-making by the inmates of the Institution, and the admirable management under which such skill in this and kindred arts is acquired under reformatory processes. It is difficult to realize that this elegantly printed, profusely illustrated, and handsomely bound volume is the product of youthful criminals under restraint ! Indeed, it is not under restraint, but a readjustment of capacities divested

of natal propensities and vicious environment. The generous expression of the superintendent that "not too harsh judgment should be visited upon them, for they are not always and altogether responsible, and society is not without responsibility for . . . the conditions of character," is fully justified by the changes wrought in them by a reversal of the influences which send them there.

For "modern criminals—that is to say, such as received at this reformatory—are to a considerable extent the product of our civilization, and also of emigration to our shores from the degenerated populations of crowded European marts. These two sources supply the great mass occupying the courts and filling our prisons. Until the source of supply is stanchd there is no safety for society but in quarantining and curing, in well-organized and managed reformatory prisons, the criminally infected individuals brought to our attention by their crimes."

During the year the population of the place rose to 1506, and would have been 1639 but for the removal of a number of the inmates to the State prisons. The managers comprehend the importance of timely provision for not less than 1700 or 1800 in the near future, while they now have but 1250 cells. Hence they urge the necessity of increasing the accommodation.

The cost to the State for the year has been \$158,434.63—\$12,783.91 more than for 1891, in consequence of the increase in the number of inmates. The earnings incidental to the trades teaching amounted to \$40,019.72—somewhat in excess of the sum realized for the previous year.

The distinctive aim of the management is to discharge the inmates at the earliest date at which they will be likely to obey the laws and honorably earn their own subsistence. Experience has shown that systematic physical culture for a certain class of the inmates, with an improved bodily condition, the result of military training, is all important. To this should be added the better adjustment of mental processes, accomplished in the schools, and, not inferior to that, discipline, acquired in the prosecution of trades, whereby the wholly made-up man passes through the successive stages in the work of reformation provided by the State.

“It is of vital importance to the State,” the managers aver, “that these young men no longer follow criminal courses, but become law-abiding, self-sustaining citizens. That such a result is accomplished by the agencies in operation in the reformatory to the extent of 80 per cent of paroled men is reasonably assured by the statistical tables of the report.”

EVERYBODY'S LAW BOOK ; LEGAL RIGHTS AND LEGAL REMEDIES, WITH BUSINESS FORMS AND VALUABLE INFORMATION. By J. ALEXANDER KOONES, LL.B., Member of the New York Bar. New York : Benjamin W. Hitchcock, publisher, 385 Sixth Avenue.

This book comprises a condensed but clear description of American law, its sources, principles, and maxims ; the national and State courts and their jurisdiction ; also actions, proceedings, and defences. A guide to the law affecting persons, property, and business transactions for men of affairs, students, married women, and others, adapted to every State in the Union, with full instructions for preparing contracts, deeds, mortgages, leases, and wills ; also for searching titles, organizing corporations, securing patents, copyrights, play-rights, pensions, homestead rights and mining claims, and the registration of trade-marks. Separate chapters devoted to commercial travellers, stock and grain brokers, promoters and promoters' agreements ; hotels, farm, horse, theatre and newspaper law ; advertisements and advertising agencies ; the law of ships, custom-house regulations, importation of goods, postal laws, taxes, etc., to which is added summaries of State statutes, a collection of forms, a miscellany of useful information, and a dictionary of legal terms and phrases. Altogether, it appears to be admirably calculated for its intended purpose—a handy book of reference for lawyers, sanitarians, business men, students, and all who believe with Blackstone that a knowledge of the law is a necessary part of a liberal education, and to no persons more than sanitarians, to whom this work is particularly commendable as a needful reference book on questions of law.

TIPS TO INVENTORS : Telling what Inventions are Needed, and how to Perfect and Develop New Ideas in any Lines.

By ROBERT GRIMSHAW, Ph.D., M.E., author of "Steam Engine," "Pump Catechism," "Locomotive Catechism," and numerous other practical works. 12mo, pp. 82, price \$1. New York: The Practical Publishing Co., 21 Park Row.

A veritable *multum in parvo* to inventors not only, but to sanitarians and other scientists and writers who would have a summary of the year's progress, including the statistics of populations of the principal countries and chief cities throughout the world at hand, and so save more time and labor than the cost of a dozen such books would come to, it is equally commendable.

PSYCHOPATHIA SEXUALIS, with Especial Reference to Contrary Sexual Instinct. A Medico-Legal Study. By DR. R. VON KRAFFT-EBING, Professor of Psychiatry and Neurology, University of Vienna. Authorized translation of the seventh, enlarged and revised, German edition. By CHARLES GILBERT CHADDOCK, M.D., Professor of Nervous and Mental Diseases, Marion-Sims College of Medicine, St. Louis; Fellow of the Chicago Academy of Medicine; Corresponding Member of the Detroit Academy of Medicine; Associate Member of the American Medico-Psychological Association, etc. In one royal octavo volume, 436 pages, extra cloth, \$3 net; sheep, \$4 net. Sold only by subscription. Philadelphia: The F. A. Davis Co., publishers, 1914-1916 Cherry Street.

The declared purpose of this treatise is a description of the pathological manifestations of the sexual life, and an attempt to refer them to their underlying conditions. To this end it comprises and co-ordinates a large amount of heterogeneous material of practical importance to every medical practitioner and alienist, but hitherto unavailable.

The work is divided into five parts: I. Psychology of the Sexual Life; II. Physiology; III. General Pathology; IV. Special Pathology; and V. Pathological Sexuality in its Legal Aspects—all cogently considered respectively under short chapters, and followed by a copious index.

APPENDICITIS AND PERITYPHLITIS, by CHARLES TALAMON, M.D., Physician to Tenon Hospital, Paris; and THE SUR-

GERY AND SURGICAL ANATOMY OF THE EAR, by ALBERT H. TUTTLE, M.D., S.B., are monthly issues, respectively, of the Physicians' Leisure Library Series, published by George S. Davis, Detroit, at 25 cents a copy ; \$2.50 a year. Both are excellent summaries of the subjects treated of, comprising the most recent advances in operative procedures of practical importance to all surgeons.

METHODS OF PRECISION IN THE INVESTIGATION OF DISORDERS OF DIGESTION, by J. H. KELLOGG, M.D., Battle Creek, Mich., is a pamphlet of seventy-four pages, comprising a good deal of practical observation of interest to all physicians.

Dr. Kellogg's excellent opportunity, as superintendent of the Battle Creek Sanitarium, has enabled him to observe and classify the conditions of such disorders beyond the reach of physicians less favorably situated, and he has done the profession an excellent service in publishing this report of particularly interesting and practical observations.

CATTLE DISEASES IN NEBRASKA. (Animal Disease Series, No. V.) Southern Cattle Plague. Third Edition. Revised and Augmented with many New Investigations, and the True Place of the Tick as a Vehicle of Infection Unquestionably Demonstrated. By FRANK S. BILLINGS, Director of the Patho-Biological Laboratory of the University of Nebraska, Lincoln, Neb.

This new edition of Dr. Billings's "discoveries" for the most part consists of a reiteration of his previously announced discoveries of "Corn-Stalk Disease," "Hydrophobia in Cattle," the "Nature of Southern Cattle Plague," etc., which have not been verified by other biologists, and his contention against the biologists of the Agricultural Department with regard to "Hog Cholera." It is devoted more to that which is generally considered the *dernier* resort of a lawyer when he has a bad case—the abuse of his adversary—than to evidence of his own case.

OUTDOORS : A Book of Health and Pleasure. Boston : Pope Manufacturing Co. A prettily gotten up description of

the outdoor sports promotive of health and pleasure, eminently commendable to the youth of both sexes.

SLAVE TRADING IN OLD NEW YORK DAYS.—The Dutch are credited with having brought the first cargo of slaves to the northern part of America—from their possessions on the Guinea coast to the Virginia plantations—and a regular part of the business of the Dutch West India Company was providing African slaves for use in its American colonies. The profits of the business, even allowing for the bad luck of a high death-rate on the western passage, were so alluringly great that it was not one to be slighted by the eminently go-ahead merchants of this town; and the fact must be remembered that, as a business, slave-dealing was quite as legitimate then as is the emigrant traffic of the present day. Young Mr. John Cruger has left on record a most edifying account of a voyage which he made out of New York in the years 1698–1700, in the ship *Prophet Daniel*, to Madagascar, for the purchase of live freight; and the sentiment of the community in the premises is exhibited by the fact that the slave-dealing Mr. Cruger was elected an alderman from the Dock Ward continuously from the year 1712 until the year 1733, and that subsequently he served four consecutive terms as mayor. In addition to the negro slaves, there were many Indian slaves held in the colony. For convenience in hiring, the law was passed, November 30th, 1711, that “all negro and Indian slaves that are let out to hire within the city do take up their standing in order to be hired at the market-house at the Wall Street Slip.”—From “*The Evolution of New York*,” by Thomas A. Janvier, in *Harper's Magazine* for May.

BEEF TEA has been in and out of repute, but we have, or should have, no doubt now as to its stimulant and reparative properties. We cannot think lightly of it as commonly prepared, for it can certainly prove harmful, when not desirable, as in the case of rheumatic-fever. I believe it is right to withhold it in such cases. Again, it is so far apt to act as an aperient that it is best not to employ it in enteric-fever or in diarrhœa, when the bowels are in an irritable condition. Mutton, veal, or chicken essences can, however, be used, having

no such aperient action. We have to distinguish between a dietary suitable for acute disease, when we have to wait and tide over difficulties, and one that may be better adapted to restore a convalescent or weakly patient. The highest nutritive value may not be (I think it is not) the most essential point to have regard to in selecting a dietary in acute diseases.—From “*Dietary for the Sick*,” by Sir Dyce Duckworth, in the *Popular Science Monthly* for May.

THE CENTURY for May starts a new volume with a new cover-design by Stanford White, based upon the design by him used for years by the *Century*, and which was afterward modified by Mr. Vedder. The magazine opens appropriately with the subject of the World's Fair, there being two prose contributions, one by Mrs. Van Rensselaer, with practical suggestions how best to see the Exposition; and the second, by W. Lewis Fraser, of the *Century* Art Department, on “Decorative Painting at the World's Fair,” with special reference to the work of Melchers and MacEwen, of which full-page illustrations are given. Mrs. Van Rensselaer's article is illustrated with large drawings by Castaigne of the principal buildings at the Fair, pictured with reference to remarkable atmospheric effects, and from interesting points of view. One of these, “Looking North from the Lion Fountain,” is the frontispiece of the number. These papers are followed by the text of Mr. Gilder's poem, “The White City,” which was read at the Burnham banquet in New York.

THE “PROGRESS OF THE WORLD” department in the *Review of Reviews* for May is rendered considerably longer than usual by reason of the great burden of topics which the month of April has produced with its American and European weekly activities—the completion of the World's Fair, the great naval review and pageant at New York, the labor struggles at home and abroad, and the general ferment and stir of life in this uncommonly active spring time. The department is as terse and frank in its discussion of affairs as usual, and is even more replete than in most preceding numbers with interesting and timely illustrations.

THE WORLD'S FAIR MEDICAL QUARTERS.—*The Chicago Medical Bulletin* is a new departure in medical journalism—a medical newspaper. At the time of this writing we have before us the twentieth number, May 13th, with a surprising amount of medical news from all about. The great Fair at its home of course receives attention; but physicians who are expected to attend it, more. It says to them:

“To still further add in every possible way to the comfort, convenience, economy, and pleasure of visiting doctors, we have decided to have our headquarters in the Masonic Temple. This building is the most central, best-advertised, and most extensively known building in Chicago, and the *Bulletin* concluded to go there so that you would not require to burden your mind with any special street and number. Just say, ‘Masonic Temple,’ and there you are. It is also the most central point in Chicago to radiate from. All street car lines pass the door.

What We Propose to Do.

“In the first place, we wish to impress upon you that *no charge* of any character will be made or remuneration expected. This point we are particularly anxious to have you remember.

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Cause of Ocean Currents. G. B. Sanderson, Ballard, Wash.

Blood in the Urine. J. Bolton Bangs, M.D., New York.

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Evolution of the American Surgeon. Lewis S. Pilcher, M.D., Brooklyn, N. Y.

Antipyrine as a Local Application in Inflammation of the Mucous Respiration of the Respiratory Tract. E. B. Gleason, M.D., Philadelphia, Pa.

Therapeutical Value of Mercurial Salts in General Surgery. Thomas H. Mankey, M.D., New York.

Cremation and Its Importance in Cholera. Robert Newman, M.D., New York.

Remarkable Sequence of Operation for Necrosis at Base of Skull. G. Lenox Curtis, M.D., New York.

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Position of Scotland with Regard to Central Sanitary Administration. Peter Fyfe, F.R.S., Glasgow, Scotland.

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Vaginal Hysterectomy by Galvano-Cautery. John Byrne, M.D., M.R.C.S.E., Brooklyn, N. Y.

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THE INTERNATIONAL CONGRESS OF CHARITIES, CORRECTION, AND PHILANTHROPY.

JUNE 12TH-18TH, 1893.

ONE of the series of international congresses in Chicago is devoted to the subjects of charities, correction, and philanthropy, and the Fourth Section of this is to consider all matters relating to the hospital care of the sick, the training of nurses, dispensary work, and first aid to the injured.

Persons desiring to present papers or to share in the discussions of this Section are requested to communicate with the Secretary at once. The period of time allotted for the preparation of the programme is necessarily brief, and it is essential that all who are willing to assist in this work should act promptly.

JOHN S. BILLINGS, M.D., *Chairman*,
Washington, D. C.

DR. HENRY M. HURD, *Secretary*,
The Johns Hopkins Hospital, Baltimore, Md.

SUB-SECTION ON THE TRAINING OF NURSES.

Chairman.—Miss Isabel A. Hampton, Superintendent Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md.

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